DECEMBER, 1970

WEEDS TREES and TURF

ANNUAL DIRECTORY: SUPPLIERS & EQUIPMENT

1970 ARTICLE INDEX

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The Cover

This is the largest issue of WEEDS TREES and TURF magazine in its 10-year history. Thanks—to the readers and to the suppliers of products and services. The response to our Suppliers Guide and Equipment Directory questionnaire was tremendous. Look it over. You will find many new suppliers and products. The cover, we believe, illustrates all the functional aspects of the industries the magazine serves. You see trees and turf (and you know that on closer inspection there would be a few weeds!). There is equipment for mechanical care, equipment for chemical treatment. And if you want to know specifically where the pictures were taken, the one at left is from the 46th International Shade Tree Conference; the other from the 4th American Sod Producers Association. Best wishes for a prosperous 1971.

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Green Survival and the Population Problem

A POPULATION PROBLEM in this country? Phooey! Anyone with a good pair of eyes and an ounce of reasoning can tell there are not too many people in this country. There will not be too many for years, perhaps centuries, to come.

A population *distribution* problem in this country? Now that's a worm with a different wiggle. Anyone with a good pair of eyes and after one visit to any metropolitan center in the U.S. would have to conclude that there most certainly is a population distribution problem.

And you in the horticulture-arboriculture-commercial turf industries have a vital interest in whether or how that distribution problem is solved. It can be, as the American Association of Nurserymen has suggested, a matter of "Green Survival."

Do you want the apartment housing industry to decide how people should live? Stacked higher and higher in the air and packed into smaller and smaller cubicles? Some apartment executives say the young prefer this kind of living; that they want leisure time for things other than mowing a lawn. That sounds like a partly believable cover-up for the real reason apartment buildings are designed as they are. They're designed to return the biggest profit to the owners.

Funny thing. After jamming the people together, what do the builders do to make the multi-housing cubicles attractive? Plant trees and grass.

There is a reason. A Louis Harris poll this summer asked people to choose among 26 things they considered important to their happiness. Ninety-five percent—more than any other response—selected "green grass and trees around me."

Why then have 75% of our people bunched themselves into urban corners of smoke, fumes, traffic jams and cubicles? They had no other choice. That's where the best-paying jobs were.

Ask any 10 persons: If you could take your present salary and the future opportunities your job holds and live anywhere you wished, where would you live? We bet you will get some surprising answers.

Are there alternatives? Why not build entire new cities in places where there were none? Build them from the ground up, complete with the conveniences city dwellers now have and with comparable job opportunities, but design them with lots of "green grass and trees around me."

Far fetched? Listen to Samuel C. Jackson, federal assistant secretary for metropolitan development: "We have a program within the Department of Housing and Urban Development which has as its purpose the creation of new cities and towns. It is the New Communities Act, a program of federal guarantees to private developers and grants to public bodies."

The first of these cities is now being planned, he said. It will be a satellite of Minneapolis, near Chaska, Minn.

The importance of where and how people live is crystalized by HUD's prediction that housing unit starts during the 1970s will exceed two million per year.

Expenditures in housing will account for a major portion of the $1.5 trillion in all types of construction predicted for the 1970s.

If new communities were built, what would happen to old ones? E. B. Weiss of Advertising Age offers one answer. He predicts 1,000 downtown pedestrian shopping malls by 1980. Eventually, he believes, the malls will outnumber the out-town shopping centers, now totaling between 15,000 and 20,000.

If the Harris poll isn't considered an unqualified mandate for optimism, then do a little pencil work. Calculate the business potential for providing and caring for the trees, grass and flowers that will be used to dress up all we've talked about. The figures are scintillating, indeed.

We agree with the tree industry prognosticators in this issue. The future has never looked brighter. The door is wide open. How far we go will depend on how fast we run.

Gene Ingalsbe

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Outlook for Highway Beautification

TAKE A RIDE ON

"What worth is beauty if it be not seen?"

HIGHWAY PLANNERS of the Seventies and beyond can be expected to employ that Italian proverb in magnitude and with frequency. Their hope is to generate public enthusiasm for their continuing primary function of providing a modern, safe, and convenient transportation system.

But a beauty pitch isn't just icing to sell the cake.

"There is a new philosophy underlying the highway program," says Ralph R. Bartelsmeyer, deputy federal highway administrator. "It is predicated on the fact that social responsibility is an important aspect of highway building. We must constantly ask ourselves if we are seeking to satisfy transportation needs at the expense of other vital needs of the American people."

One of those high priority needs, kindled anew by Mrs. Lyndon B. Johnson, blessed by President Nixon, and almost demanded by the public is environmental improvement and beautification.

Short and intermediate term objectives of the highway program are to transport people to witness the beauty of the land without disrupting it.

Landscape treatment of trees, shrubs and ground cover always will be important, believes George H. Andrews, chairman of the Roadside Development Committee of the American Association of State Highway Officials. "We can make a drive on the highway a pleasant experience," he said. "We can make the highway appear that it belongs where it has been constructed, instead of a foreign element forcing itself through the community."

What planners dream about is not presently within the scope and responsibility of the Federal Highway Administration. Planners hope to see the day when highway construction will be the motivating force for massive, multiple-use land development and beautification.

Highway acts of 1965, 1968 and 1970 express their desires and measure their progress. They are having some success.

Traveling on Interstate 00

Take a ride, for a moment, on a composite, though in part fictional, Interstate 00, illustrating some successes to date and thinking of the future.

Interstate 00 begins by tackling and finding a solution to the complex problem of passing through the nation's major metropolitan center, New York City.

"Urban land is too scarce and valuable for highway rights-of-way to be devoted solely to the movement of vehicles," says Harter M. Rupert of FHA's Environmental Development Division.

Therefore, the Brooklyn-Queens Expressway, as our composite interstate is called there, incorporates a highway, a pedestrian mall-park, and the existing waterfront and commercial activities.

Rather than constructing a surface arterial that would slice through and destroy an educational institution at Troy, N.Y., the highway was built in such a way that has instead spurred the college's growth.

A depressed section 514 ft. long with two lanes and a 10-ft. emergency lane was built, with Russell Sage College picking up the tab for the difference in cost of the tunnel as opposed to the surface arterial. Now the college has a campus with no vehicles, unified with a curving walkway upon which the buildings front.

Early in its continental S-curve route, Interstate 00 meets the criticism of conservationists that charge roads with upsetting and destroying wildlife ecology. In Tioga County, New York, ducks and birds have found a quiet nesting place in the median strip. A stock fence protects the sanctuary, and provision has been made for motorists to view the area.

Widened Corridors

Across Ohio and Indiana, Interstate 00's conventional corridor widens from 300 feet to 3,000 ft. at one point to take in an area with historical significance. Where the small community had objected to a major highway but lacked funds to develop the historical site, the two parties came to a satisfactory compromise.

Other 3,000 ft. bulges incorporate picnic areas and even golf courses. Through corn-rich Illinois, farmers are allowed to continue planting on easements, thereby reducing to a minimum the amount of valuable land taken out of food production.

Through the scenic Ozarks, Interstate 00's access control fence is moved to the toe of the slope and to the top of slopes adjacent to the roadway to permit the construction on rights-of-way of foot, bicycle, and bridal paths. Communities were encouraged to develop small parks or "sitting areas" along the outside edges of the right-of-way.

INTERSTATE 00

Through downtown Oklahoma City, the interstate takes an elevated route and provides beneath the roadway 1,189 much needed parking spaces.

Curving northward into Nebraska, the highway is responsible for the development of lakes for fishing and boating, creating recreational facilities where they never before existed. In South Dakota, an embankment gives the Rosebud Indian Reservation a lake for fishing, swimming and boating. The lake also serves as a watershed storage facility.

In Utah the highway's horizontal and vertical alignment was adjusted to incorporate within the median a railroad and a creek. This simple and functional effort often goes unnoticed, yet it avoids a multitude of problems that could be encountered if rail, stream and roadway had followed different alignments.

Viaduct Space Utilized

Spokane, Wash., is using the viaduct area for parking, maintenance and recreation facilities. A building is being considered and would be constructed by the Associated General Contractors for use during weekends and evenings as an industrial training center. During the daytime, the facility is planned as a industrial training shop for Lewis and Clark High School. Business district parking spaces will be used by nearby churches on Sunday.

Construction has begun on a pedestrian plaza over the Interstate in the central business district of Seattle. This project, involving private enterprise through the construction of a 20-story office building and adjoining underground parking garage, will be constructed partly on private land and partly on the outside edges of the interstate right-of-way through a long-term lease arrangement.

The Department of Highways will build a platform over the depressed 12-lane freeway section, with the City of Seattle, through general obligation bonds, building public parking facilities on the east side of the freeway opposite the privately-developed office building. Users of the public parking facilities will be able to cross over the freeway, and the top surfaces of both the public and privately-developed garages will be landscaped and maintained by the Seattle Park Department.

All along Interstate 00, travelers would not see a single outdoor advertising billboard or junkyard. These would either be removed or screened from view by landscape plantings. At regular intervals, there would be publicly owned and controlled information center buildings and an increased number of rest areas.

There you have Interstate 00; some of it reality, some still a dream. This composite of ideas comes from three speakers who appeared on the program of the 29th annual short course on roadside development, co-sponsored by the Ohio Department of Highways and Ohio State University's Department of Landscape Architecture.

Formula for Achievement

How will this new dimension in highway construction come about? Speaker Harter Rupert offered the formula.

It will take "civic" responsibility, he said, explaining that the word civic is an acronym for five principles:

—Consideration of social, economic, and environmental effects.

—Interdisciplinary approach to these environmental problems.

—Value added through multiple use and joint development.

—Intergovernmental action.

—Citizen participation and community involvement.

"A most important aspect of this subject is that it is not so much **what** effects or factors that you consider, as much as it is **how** you study them, and **who** is involved in the study," he emphasized.

Rupert reported on two FHA activities that he felt would be helpful in carrying out the first principle. One is a set of written technical guidelines that would identify many of the social, economic and environmental elements likely to be encountered in highway projects. The second is a set of illustrated lectures to be distributed to highway personnel to "broaden backgrounds and promote greater awareness of environmental concerns."

Subject coverage will include ecology, traffic noise, architecture, pollution, recreation and parks, landscape architecture, and others.

Rupert defined the interdisciplinary approach as one bringing together a variety of professional disciplines and interests to develop in concert a wide range of alternatives and analyses for review and selection by the responsible public officials.

The Troy, N.Y., project involving Russell Sage College was cited by Rupert as an illustration of the

Federal Spending Trend For Highway Beautification Is 'Definitely Up'

value added through multiple use and joint development. A recent FHA publication, he said, listed more than 700 multiple-use projects that are proposed, in progress or completed. These projects, he added, range from mini-parks and parking lots to wildlife refuges, schools, and high-rise buildings.

As an example of intergovernmental action, Ruper pointed to a committee in Miami, Fla., area. It includes representatives from 10 city and county groups that would be affected by Interstate Highway 395.

To get citizen involvement in a constructive way, FHA intends to try a process labeled "Charrette," developed by the Department of Health, Education, and Welfare. It has been used to get citizens' ideas for building educational facilities; hopefully it will work for building highways as well.

The technique is applied to study and resolve facility development problems within the context of total community planning. It requires major representation of community residents. The principal purpose is to arrive at implementable plans and solutions in a compressed time period, perhaps in about two weeks.

"The enthusiasm and imagination of ordinary citizens," says Rupert, "can succeed in opening up possibilities the experts had not thought of, or had not thought feasible—or in ways of overcoming budgetary and political constraints that had been taken for granted."

AAN Suggestions

F. Raymond Brush, secretary of the American Association of Nurserymen, called for greater cooperation of highway departments with the nursery industry. He offered suggestions that would encourage more efficient highway landscaping:

1. All highway landscaping should be done under separate prime contracts.

2. All landscape contractors should be prequalified based on a firm's proved experience in landscape contracting with special emphasis on highway landscaping.

3. A performance bond should be required just as for any other prime contract.

4. Pre-bid conferences should be held on any contract where special requirements or abnormal site situations are a problem.

5. Greater uniformity in inspection procedures.

6. More emphasis on the establishment and care of newly landscaped highway sites.

"Emphasis can be placed on this by requiring that highway bids be broken down in two parts," he said. "The first part would be for the establishment and care during the guarantee period. If you are going to require care and maintenance for more than 30 days from planting, then you should make sure that every bidding firm is making proper allowance for this."

View at the Money Level

How much business can the landscape contracting and maintenance industries expect next year, or in the near future? Congress is presently wrestling with the key to the bank—appropriations. It has been a vigorous match since passage of the 1965 Highway Beautification Act.

Landscaping and roadside development has been considered a normal part of construction since 1938. But the act of 1965 included a provision for controlling billboards within 660 feet of Interstate and federal-aid primary highways. It also included a provision for the removal or screening of junkyards. Beautification was the motive. The federal government shares the cost of removal. States lose a portion of federal-aid highway funds for noncompliance.

"Virtually no other federal program of the size and scope of outdoor advertising control has engendered a like amount of comment, controversy, and debate," said FHA deputy Bartlesmeyer.

Sign companies responded to the law (which didn't call for removal until 1970) by building bigger signs just outside the 660-ft. limit. FHA has responded by proposing in the 1970 Act an amendment to the 1965 Act that would extend the control "to the limits of visibility" for both billboards and junkyards.

While controversy raged over billboards, another section of the beautification act involving the most funds appropriated to date has been most successful, Bartelsmeyer said. "This is the phase involving landscaping, scenic enhancement, and the construction of roadside rest areas.

"Of the $135 million in Federal funds appropriated under the Highway Beautification Act of 1965, $125 million has been spent on landscaping and scenic enhancement."

The 1970 Act, approved by the Senate and presently being considered by the House, calls for landscaping and scenic enhancement of $1.5 million for fiscal year 1972 and $10 million for fiscal year 1973, Bartelsmeyer reported.

Funds earmarked under the Highway Beautification Act are in addition to those allocated as a normal part of highway construction, pointed out George MacInturff, chief of FHA's scenic enhancement division.

Since 1966, he said, within contruction fund authorizations, some $117.2 million has been approved for landscaping; $315.7 million for erosion control; and $107.8 million for roadside rest areas.

"Keep in mind, these are federal funds only," he said. State funds must be added to these figures to arrive at a total that might be spent for beautification. There is no way to determine just what the state figures will be, he added, but at the federal level the spending trend for beautification "is definitely up."

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Pesticide Outlook

WILL IT BE A YEAR OF THROWING OUT THE BABY WITH THE WASH?

By JIM MILLS
Director of Public Relations
National Agricultural Chemicals Assn.
Washington, D.C.

Gypsy Moths Devastate 10,000 Acres in Poconos
Wheat diseases 'steal' part of the crop
Ravaged Summer
It's the Natural Sequel to "Silent Spring"
BARRON'S
Noisy 17-Year Locust Isn't Really a Locust, But It Really Is Noisy
Cicadas, Dying Now, Can Harm Apple Trees but Not Men, Fighting Swarms
Be careful of diseases that cut into wheat yields
USE OF EMERGENCY CHEMICAL SOUGHT TO SAVE I.V. COTTON
New Pest Invades Imperial Valley
Crazy Ant Joins Hordes Of Destructive Insects Plaguing Area
Mercury ban costly to state wheat treaters
Controls Urged Now to Assist State's War on Johnsongrass
'Early blight' can girdle, kill young tomato plants

WITH 48 STATES having legislative sessions scheduled during the coming year, you must conclude that the climate for pesticides will likely get pretty hot during 1971.

Efforts will likely be made in many states to curtail or eliminate the use of many of the most effective pest control products. Several states already have developed long restricted use lists. And they have done so despite a historical pattern of regulatory competence by the state agencies. It's all part of a popular swing to "environmental protection" — with major emphasis being given to hazards, rather than benefits from using pesticides.

It's difficult to anticipate the precise form which proposed restrictions will take. But most will be based on the premise that persistency per se is bad for the environment, and that the simple solution (to complex problems) is to remove the offending chemical from the channels of trade. Such an approach can be likened to throwing the baby out with the wash water.

Legitimate interests will be hard pressed to maintain or retain their right to use specific products to solve problem situations. Pest control programs and subsequent community health and welfare are likely to suffer if the proposed legislation becomes law without providing for those uses which are legitimate and necessary.

We can expect legislation designed to tighten up the use and application regulations. Such action would aim to reduce widespread use of such chemicals by anyone other than those who demonstrated the need and competency to use them.

Prospect for New Products

This is an area of great misunderstanding. There is an assumption that new pesticides will continue to come into the market at the safe rate of introduction as they have in the past.

This is not happening. And not because of foot-dragging by industry.

There are several reasons for the slowdown. These would include the increase in the number of agencies involved in the approval of new products and uses, the changing rules of what is desirable in a pesticide, and the fact that, while new materials can still be found within the various classes of chemicals, the prospects within each class have diminished greatly.

Further, several companies have dropped their research and development activities for various reasons. Others are taking a hard look at their research efforts in light of the skyrocketing costs, market potential, and prospects for successful introduction of new compounds. Analyzed against the backdrop of current emotional outpourings against the use of pesticides, the outlook for new products reaching the market in any great number is bleak. A trend is developing. Companies are looking to other lines not as subject to the type of harassment being felt within the agricultural chemical industry.

The Public View

There is no doubt that the public view of the role of pest control chemicals needs to be improved. Whether it can be done or not is the subject of much concern, both in and out of industry.

Complicating the picture is the fact that what was heretofore a scientific discussion has been thrust into the public arena where simple answers are expected. Regardless of their desirability, simple answers just are not possible in such technical fields. Nonetheless, proposals to ban gain much favor. And herein lies the real danger. The total public welfare may well be at stake. The health, nutrition, structures, and well being of society depends to a great measure on the proper use of pest control chemicals.

The inaccuracies and exaggerations published about pesticides have raised a smokescreen which obscures the facts which also must be weighed — the benefits which each of us receives from the responsible use of pesticides.

We can't ignore the problem areas, nor should we ignore the basic and overriding reason for the existence of pesticides, which is to protect the environment which supports us. Until each of use recognizes, in terms which we can understand, how much of our food, health and well-being stems directly from proper use of pesticides, we are in danger of losing these benefits as a result of panic-button reaction.

Whether the story can be told in time remains to be seen. Industry, of course, is accused of bias in attempting to point out the value of its products. But the user of pesticides knows of the great good they do for all consumers. He can do much to bring sanity and reason back into the picture by relaying his knowledge to his customers.

The irony of the situation is that without the benefits gained from pesticides — the food supply, the health programs, sanitation, the protection of our buildings, our surrounding lawns and shrubs, and the management of wildlife habitat — we would be forced into a return to primitive existence, and could ill-afford to focus our attention almost exclusively on the risks which their use may entail.

Some Other Views

THREE OTHER industry leaders generally agree with Mills' view on pesticides for the coming year.

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Perhaps the most publicized illustration of what can happen when one control method is banned before another is developed comes from the devastation of the gypsy moth. At left is an enlarged moth (normal size is ¾-inch) taken by USDA photographer Larry Rana. The moth is held captive in a holding device while his reaction to various lures is recorded. USDA scientists have developed a powerful synthetic lure, "Disparlure," that matches the female moth's attractant. The lure can be used in traps to capture the pest without the use of insecticides. Practical use of the method is months, perhaps years in the future. Meanwhile, the gypsy moth defoliated 800,000 acres of trees this year, triple the acreage last year.

They do see a few encouraging signs.

"Since a reported 200 bills are pending in Congress and many more proposals in state legislatures, I would expect the focus to be on new pesticide legislation and regulation," commented Bill La Rue, executive secretary of the Southeastern Agricultural Chemicals Association, Raleigh, N.C.

"I expect the pesticides which are more hazardous to handle and use will be the pesticides that will be somewhat restricted."

Leavitt S. White of Du Pont Company's public relations department believes that public confidence in crop protection chemicals, for example, will depend on "greater understanding by the public that these agents are thoroughly tested, properly regulated, and that there is an increasing awareness and desire on the part of the applicator to use these chemicals carefully.

"The need for crop protection has been highlighted in 1970 by the sudden appearance of corn blight," he said. "Growers everywhere face the challenges of weeds, plant disease, and insect infestation. Their problems and successes in meeting these problems safely with crop protection agents can be more widely understood in 1971."

It is not the users of chemicals that are in trouble, says Ray Thornton, president of Cane Air, Inc., Belle Rose, La., and president of the National Aerial Applications Association, "it is the average American. He has no conception of what this country would be like without pesticides.

"As for new restrictions, the sky is the limit. I will say that you will see DDT brought back. It will never be outlawed.

"I don't believe you will see many

new products on the market. The cost and red tape will be almost prohibitive.

"The pesticide industry can improve its image by circulating our story in magazines other than our own trade journals. We've been talking to ourselves too long.

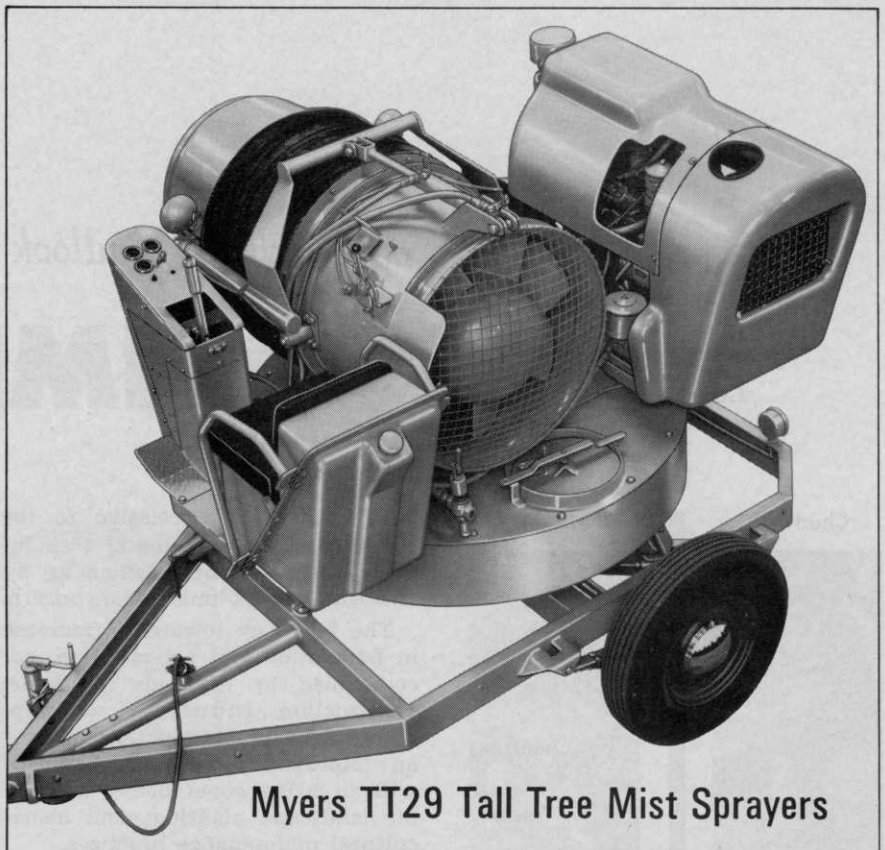
"Should banning result of a needed pesticide due to inaccuracies and exaggerations, then the publisher should be held liable.

Users of pesticides should acquaint their customers with the true facts. A positive perspective is the best approach."

Meanwhile, formation of a type of national policy on pesticides is on the drawing board. While a broad general policy probably won't be fully defined for some time, a few guidelines are emerging.

An administration official hinted at these guidelines when he spoke to members of the National Pest Control Association at the group's recent annual meeting in Portland. Dr. William Murray of the President's Cabinet Committee on the Environment explained that current plans are to pursue a sharp reduction in application of persistent pesticides to essential uses.

In addition, a general policy might someday include a classification such as the following, he said: A category of pesticides intended for general use, subject only to label restrictions; a category of materials intended for restricted use where users themselves would have to be approved (possibly through licensing by a "properly recognized authority," and a third category of prescription-only pesticides. Materials in this classification would be available only to approved users, dispensed by written permission from an "approved consultant."



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New TT29 with "Joy Stick" controls for easy, tireless all day operation. "Joy Stick" turns entire unit full 360° and moves air case up and down for pin point accuracy. Trigger button on stick provides instant on-off of spray material... saves expensive chemicals.

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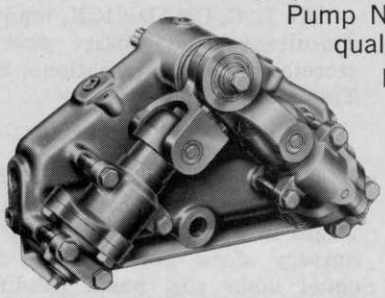

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Profit
Growth
Problems
New Technology
Legislation

Tree Industry Outlook

OPTIMISM AND

Chadwick

Nickel

Rae

Goodall

MY THOUGHTS relative to the shade and ornamental tree industry can best be summed up by two words — Optimism and concern.

The tendency toward an increase in population and urbanization, accompanied by demands for home construction, industrial development, highway construction, and for an improved quality environment will all bring about heavy demand for landscape plantings and aboricultural maintenance practices.

This is the optimistic side of the coin.

Our changing environment will bring about new concepts in city planning. The development of new "Town Centers" and the revitalization of existing downtown city areas will create a need for new tree cultivars to better tolerate environmental conditions and changes.

Development of buffer strips and roadside plantings to screen unsightly objects, deaden noises and enhance beauty; the development of close-in mini-parks; the requirements needed to improve air quality . . . all these will bring a greater demand for the selection and use of the right cultivar to "fit" the environmental demands of the area.

My concern? Will the industry be ready to furnish "the right trees"? — DR. L. C. CHADWICK, landscape consultant and past executive secretary of the International Shade Tree Conference.

NEVER WAS THE OPPORTUNITY for profits better. Minimum wages in agriculture have put most nursery stock producers on more equal labor cost basis. Production supplies and maintenance materials, while steadily increasing in cost, are a reminder that the increases must constantly be considered in pricing plant material at both wholesale and retail levels. With more equal labor costs, most producers should be able to price their product nearer its true worth.

Growth will be tremendous in industrial plantings, highway beautification, and domestic complexes, such as retirement villages, and even complete new cities.

Labor is, and will continue to be, our most important problem. Product prices in the future must allow us to upgrade the jobs we have to offer to attract more and better equipped personnel.

Many innovations will appear in both the growing and marketing of nursery plants in the near future. The container-grown plant is no longer an experiment, but for some climates has become a new way. Chemicals will no doubt show us undreamed ways of future growing or handling of stock.

How will legislation affect us? Even now there is much legislation that is law, or pending, that is of vital interest. Collective bargaining, pesticide use, and pollution of air and water are but a few. There will be more, and it will be our place to help our legislators in guiding this important action.

The American Association of Nurserymen theme of "Green Survival" should, and most probably will, be the guideline for good anti-pollution measures in the future.

The outlook for the nursery business was never brighter; it can be every bit as good as we nurserymen want to make it. —HAROLD R. NICKEL, Park Hill, Okla., Greenleaf Nursery Co., and president of the American Association of Nurserymen.

WITH TIGHT MONEY and the unemployment rate in New England, especially in Massachusetts, the profit picture will not improve in the near future.

We cannot continue to increase

CONCERN

our rates to offset the increase in cost of labor, equipment and materials. We must analyze our company, operate more efficiently, utilize equipment as much as possible, educate and train our employees to increase their knowledge, skills and productivity.

Professional tree-care companies have a bright future; the increasing concern in environmental controls should benefit us all.

The shorter work week, more leisure time and the growing interest in conservation means additional business.

Labor has been a chronic problem and will continue to be. Our industry must improve its public relations and its image. We must tell our prospective client and employee more about our profession. There are many opportunities and benefits for the qualified and interested man.

Disposal of wood and brush is a serious problem in our area. The time could come when an arborist might refuse a tree-removal because he cannot dispose of the brush.

New equipment that will dispose of wood will be developed. New methods for controlling insects and diseases will come. New chemicals to replace the insecticides banned will come. Research on Dutch Elm Disease will produce controls for the future.

Legislation that has curtailed dumps, restricted spraying and prohibited burning will continue to affect our business. —WILLIAM A. RAE, president, Frost & Higgins Co., Burlington, Mass., and president of the National Arborist Association.

THE TREE INDUSTRY, as in any business, is sensitive from a profit standpoint to the rise and fall of the economic market.

To stabilize the profit margin, most economists feel it is necessary for businessmen to make every effort to cut operating costs, that labor achieve higher productivity and restrain wage increase demands, and that voters reduce the number of services they ask from government.

Our government has no magic wand it can wave to stop prices from rising. All of the above facets compete for and reflect in the profit picture we hope to obtain.

John R. Hansel, executive director of the Elm Research Institute, feels new technology will produce a breakthrough in combatting Dutch Elm Disease. This seems to be coming closest to reality in the field of repellants and attractants, especially in developing a reliable sex attractant. One university, using an E.R.I. grant, is cooperating with an eastern nursery hoping for an early breakthrough on a resistant elm tree.

The tree industry is relatively new. It has had major problems and will continue to have them. A few are the chestnut blight, DED, the Japanese beetle, gypsy moth saddle prominent, elm leaf beetle, and elm bark beetle.

Legislation restricting insecticides, and solid waste disposal will have definite impact on our business.

Despite the hazards, never in my more than 40 years in the tree-service field has the future looked brighter.

There are still fields to conquer in the battle to save our trees. Let's give them the starring part on the stage of life, as they grow along the corridors of time, building bridges of beauty and dignity between the past and the present. Lest we forget —It is not the community that graces trees, it is trees that grace communities. —GEORGE W. GOODALL, chairman of the board, Goodall Tree Expert Co., Portland Maine, and president-elect of the American Society of Consulting Arborists.

Thousands of acres of woodlands suffered unsightly, if not fatal, injury this summer from swarms of the 17-year cicada. The female "locust" slit twigs and small branches to lay her eggs. Branch tips died leaving whole forests of green trees mottled with brown-tipped branches. Some smaller trees under heavy locust attack were killed.

Municipal Arborists Survey Reveals

MORE FUNDS FOR TREE CARE

DUTCH ELM DISEASE may yet be credited with a constructive contribution—that of calling public attention to the work of the municipal arborists, foresters, and park personnel.

A survey of 67 municipalities by the Society of Municipal Arborists reveals that tree removals are up sharply and that 70% of them are due to Dutch Elm Disease.

The resulting tone of their reports is that budgets have been increased, new equipment has been authorized or purchased, tree nurseries have been established, and new tree planting projects initiated.

Citing a significant increase in budget, Kenneth R. Neal of Elmhurst, Ill., believes it "indicates that thinking is with the field of arboriculture and minds are becoming aware of the need for maintenance of street trees and beautification."

The biggest budget increase—but for special reasons—was at Toledo, Ohio, where the capital improvements budget jumped from a half-million to $9,065,000. Projects included clean-up of $5 million in storm damage, the beginning of a 1,500-acre greenbelt development, and 100% expansion of office staff.

Total tree removals reported by the 67 communities were 87,618 during the fall of 1969 and spring of 1970. Total trees planted during the same period were 95,591. Some of the larger plantings and removals are listed in Fig. 1 and 2.

Removal reasons other than Dutch Elm Disease included other diseases, storm damage, dieback, general decline, street construction, vandalism and vehicle damage, new trees which did not survive, and salt, sewer and sidewalk trouble.

Aphids were reported as the prime insect problem in 18 communities. Other pests were fall cankerworm, caterpillars, leaf hoppers, gypsy moth, elm leaf beetle, red spider mites, bagworms, obscure scale, oak moth, mimosa webworm, oyster shell scale, and 17-year locust.

Diseases ranking after Dutch Elm Disease were cottony maple scale, maple decline, verticillium wilt, canker stain, oak leaf skeletonizer, fire blight, oak kernels, European elm scale, and oak chlorosis.

Aerial bucket lifts were the most frequently mentioned equipment item purchased in the past year. Others included tree spades, stumpers, chippers, trucks, log loaders, and sprayers.

Here is a sampling of achievements in past year that SMA members listed:

HARTFORD, CONN., Charles Meli and J. E. Allen — Participated in HUD's urban beautification program.

HIGHLAND PARK, ILL., David L. Kussow—Planted flower beds for downtown beautification.

RIVER FOREST, ILL., Michael W. Bearden—Inaugurated a public relations program.

MASON CITY, IA., Sterle E. Crandall — Ordinance passed allowing trees to be planted in downtown area.

WICHITA, KAN., John G. Firsching — Convinced community to go along with a planting program incorporating a wide variety of functional trees.

NEW ORLEANS, LA., August Catalano—Renovated Jackson and Lafayette squares; spent $150,000 to replace equipment; increased tulip bulb plantings to 100,000; planted Sabal Palms in median strip of Canal St.; and landscaped Rivergate Exhibition Center.

DANVERS, MASS., James T. Printiss—Started a three-acre tree nursery.

BIRMINGHAM, MICH., Darrel C. Middlewood—Carried out tree-planting program in park land along river and resumed master street tree plan work.

MONROE, MICH., Julius Purvins — Started maintenance program, specifically watering and fertilizing trees.

MINNEAPOLIS, MINN., Dave De Voto—Annual budget increased from $450,000 to $1,149,000; re-established board-owned nursery; imposed severe crackdown on and enforced inspection of construction work where trees are involved, in effort to prevent damage.

LINCOLN, NEB., Emilio L. Fontana—Developed tree nursery and planted trees on downtown streets.

OMAHA, NEB., Orville K. Hatcher—Planted six blocks of planter trees downtown.

NUTLEY, N.J., Peter Childs — Established municipal nursery; began master street tree plan; and increased budget 100%.

COLUMBUS, OHIO, Alex Wynstra, Jr.—Proposal has been made to utilize the front foot assessment program to finance the forestry program.

BURLINGTON, VT., Sid Baker—Started nursery on state land.

PORTSMOUTH, VA., Thomas O. Eaton — Installed landscape plantings, decorative signs, park fences, park benches, fountain and pool under $70,480 Urban Beautification Grant; participated in planning for new $80,000 project; initiated pilot project of container street trees; beautified land cleared in the downtown area by the city redevelopment and housing authority.

EAU CLAIRE, WIS., Fred Baumgartner — Began master street tree plan; planted flowering trees at park entrances.

MOOSE JAW, SASKATCHEWAN, CANADA, Andre R. Gate—Established minimum size for street tree planting at seven feet, began master street tree program; and used planter boxes on Main St.

WINNIPEG, CANADA, Martin E. Benum—Increased budgets for tree maintenance and planting; changed legislation to put teeth into the tree policy.

FIG. 1. Tree-Planting Projects

21,400	Milwaukee, Wis.	2,255	Richmond, Va.
6,714	Baltimore, Md.	1,731	New Orleans, La.
5,213	Toledo, Ohio	1,478	Dayton, Ohio
4,083	Rochester, N. Y.	1,343	Pontiac, Mich.
3,297	Cleveland, Ohio	1,272	Portsmouth, Va.
3,141	Flint, Mich.	1,187	Minneapolis, Minn.
2,567	Aurora, Colo.	1,084	Philadelphia, Pa.
2,457	Detroit, Mich.	1,080	Tonawanda, N. Y.
2,364	Midland, Mich.	1,000	Buffalo, N. Y.

FIG. 2. Tree-Removal Projects

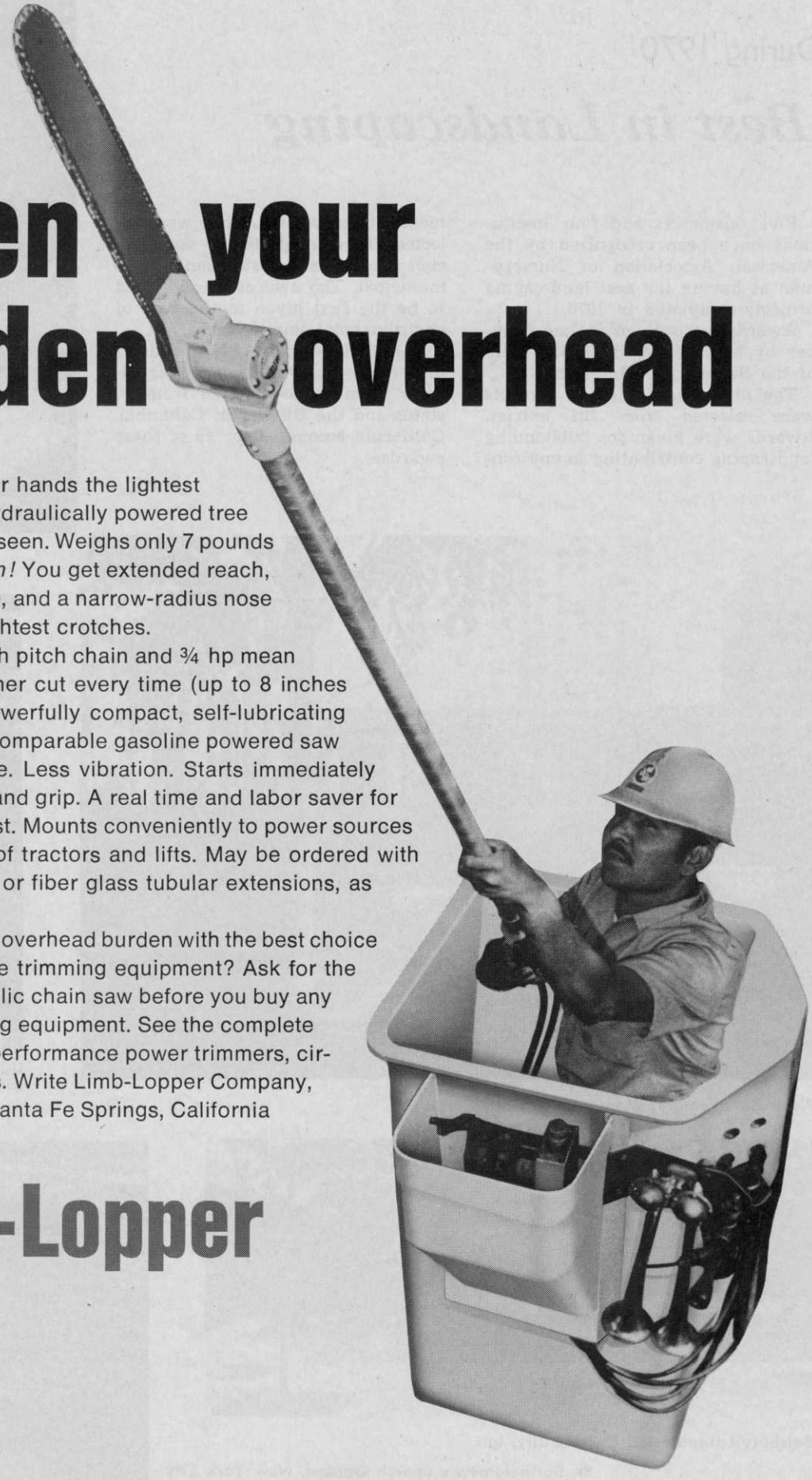
15,737	Milwaukee, Wis.	2,228	Flint, Mich.
10,623	Detroit, Mich.	2,043	Cleveland, Ohio
5,120	Des Moines, Iowa	1,868	Lincoln, Neb.
5,000	Buffalo, N. Y.	1,641	Toledo, Ohio
4,906	Rochester, N. Y.	1,550	New Orleans, La.
3,500	Topeka, Kans.	1,500	Richmond, Va.
3,500	Omaha, Neb.	1,473	Philadelphia, Pa.
3,250	St. Louis, Mo.	1,375	Akron, Ohio
2,983	Dayton, Ohio	1,350	Monmouth County, N. J.
2,790	Wichita, Kans.	1,023	Evanston, Ill.
2,708	Baltimore, Md.		

Lighten your burden overhead

Now you can put in your hands the lightest weight, scrappiest little hydraulically powered tree trimming saw you've ever seen. Weighs only 7 pounds . . . *including bar and chain!* You get extended reach, the slimmest cutter profile, and a narrow-radius nose that lets you get at the tightest crotches.

What's more, the ¼-inch pitch chain and ¾ hp mean you get a cleaner, smoother cut every time (up to 8 inches in a single pass). This powerfully compact, self-lubricating hydraulic saw beats any comparable gasoline powered saw made. Spunky. Less noise. Less vibration. Starts immediately with ready power at the hand grip. A real time and labor saver for the tree trimming specialist. Mounts conveniently to power sources of all makes and models of tractors and lifts. May be ordered with 3, 4, 5 or 6-feet aluminum or fiber glass tubular extensions, as required.

So, why not lighten your overhead burden with the best choice yet in hydraulic power tree trimming equipment? Ask for the Mark II Model HCS hydraulic chain saw before you buy any kind of power tree trimming equipment. See the complete Limb-Lopper line of high-performance power trimmers, circular saws and chain saws. Write Limb-Lopper Company, Inc., 11845 Burke Street, Santa Fe Springs, California 90670. (213) 696-1128.



Limb-Lopper

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During 1970

Best in Landscaping

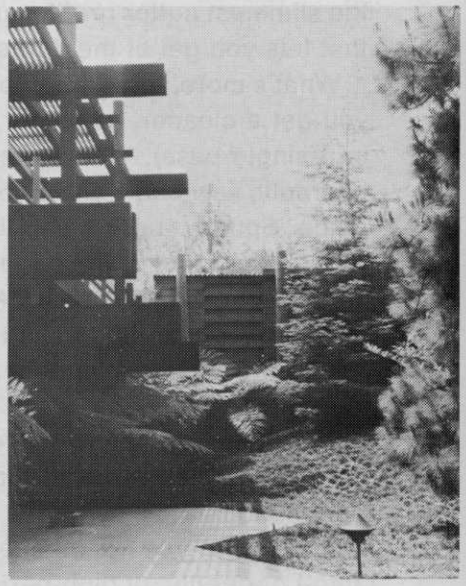
Five businesses and four institutions have been recognized by the American Association of Nurseryman as having the best landscaping projects completed in 1970.

Awards were given in late October by Mrs. Walter J. Hickel, wife of the Secretary of Interior.

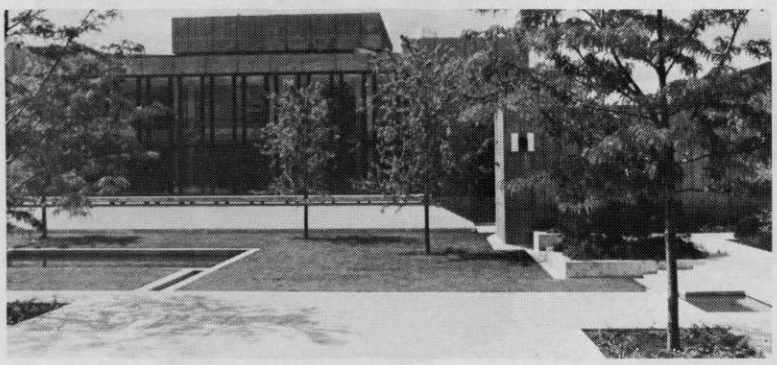
The nine award-winning projects were selected from .201 entries. Awards were given for outstanding landscaping contributing to environmental improvement. They were selected from categories of commercial, industrial, institutional and municipal. The awards are believed to be the first given in the area of environmental improvement.

Harold R. Nickel, AAN president, presented 36 second-place certificates of merit to winners from 10 states and the District of Columbia. California accounted for 15 of these awards.

Place Bonaventure, Montreal, Quebec, Canada



UCLA Canyon Recreation Center, Los Angeles, Calif.

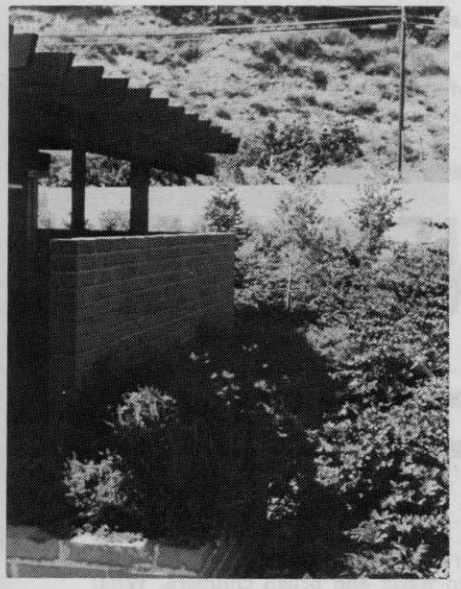


Salsbury Laboratories, Charles City, Ia.

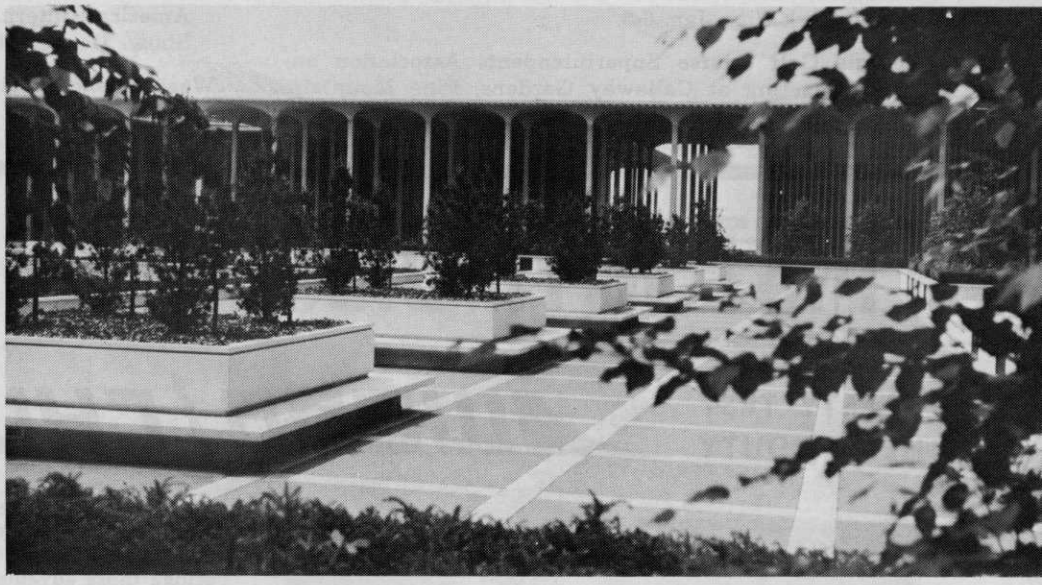
St. Bartholomew's Church Garden, New York City

Deerfield Lake Apartments, Deerfield Lake, Fla.

Children's Medical Center, Dallas, Tex.



Shell Oil Station, Carmel, Calif.



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meeting dates

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Ohio Turfgrass Conference and Show at the Cincinnati Convention Center. Dec. 7-9.

25th Texas Turfgrass Conference, campus of Texas A&M University, College Station. Dec. 7-9.

National Aerial Applicators Association fourth annual conference at the International Hotel, Las Vegas, Nev. Dec. 7-10.

North Central Weed Control Conference 25th meeting, Phoenix Hotel, Lexington, Ky. Dec. 8-10.

5th Wisconsin Golf Turf Symposium at the Pfister Hotel, Milwaukee, Wis. Dec. 9-10.

81st Convention of the Western Association of Nurserymen at the Plaza Inn, 45th and Main Sts., Kansas City, Mo. Jan. 3-5.

Indiana Arborist Association 23rd annual Midwinter Conference at Stouffer's Indianapolis Inn, 2820 N. Meridian. Jan. 5-7.

25th Northeastern Weed Science Society at Hotel Commodore, 42nd Street at Park and Lexington Avenues, New York City. Jan. 6-8.

Georgia Golf Course Superintendents Association annual meeting at Callaway Gardens, Pine Mountain. Jan. 10-12.

Mid-Atlantic Association of Golf Course Superintendents turf conference at the Holiday Inn, Howard and Lombard Sts., Baltimore, Md. Jan. 11-12, 1971.

Tennessee Turfgrass Association annual conference, Sheraton Hotel, Nashville, Tenn. Jan. 11 and 12.

New Jersey Recreation and Park Association 5th annual parks symposium. Lewis M. Herrman Labor Education Center, Rutgers University, New Brunswick, N. J. Jan. 13.

University of Nebraska annual turf conference, Lincoln. Jan. 13-15.

23rd California Weed Conference. Woodlake Inn, Sacramento, Jan. 18-20.

Southern Weed Science Society 24th annual meeting at the Sheraton-Peabody Hotel, Memphis. Jan. 19-21.

Associated Landscape Contractors of America ninth annual meeting and trade exhibit at the Royal Orleans Hotel, New Orleans, Jan. 24-30.

41st Michigan Turfgrass Conference. Kellogg Center, Michigan State University, East Lansing. Jan. 26-27.

Pennsylvania-Delaware Chapter, International Shade Tree Conference, 6th annual Shade Tree Symposium. Memorial Hall, 44th and Parkside, Fairmount Park, Philadelphia. Jan. 27-28.

42nd Golf Course Superintendents Association of America International Turfgrass Conference and Show. Denver Hilton, Denver, Colo. Feb. 7-12.

Weed Science Society of America. Statler-Hilton Hotel, Dallas, Tex. Feb. 8-11.

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WEEDS TREES and TURF®

1971 SUPPLIERS GUIDE AND EQUIPMENT DIRECTORY

GOLF COURSE ARCHITECT DIRECTORY

1970 ARTICLE INDEX

Weeds Trees and Turf presents in this section its annual guide to suppliers of vegetation control chemicals and equipment in urban/industrial areas. There is a mixture of common and registered trade names, unavoidable since usage and recommendations of researchers refer to a particular chemical by one or the other, depending upon the newness of the compound, whether its common name is easier to use, or industry acceptance. There also will be some differences of opinion over the inclusion or omission of certain chemicals under particular use categories. Here again confusion exists among reference sources. We have made our choices on the basis of most frequent mention in our surveys which preceded this compilation. Readers' comments and suggestions are invited to help up improve future editions. Keep this year's guide handy for frequent use.

An index to editorial content for 1970 follows the Suppliers' Guide. Subjects and titles, cross-references, are listed for all major features, news stories, conference reports, editorial opinion, columns and letters. Contributing editors are listed at the end of the index.

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Nalco Chemical Co.

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ATRATOL

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ATRAZINE

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O. M. Scott & Sons Co.
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U.S.S. Agri-Chemicals Div.

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Chipman Div., Rhodia Inc.
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FENATROL

Amchem Products, Inc.

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Nalco Chemical Co.

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Miller Chemical & Fertilizer Corp.
Niagara Chemical Div., FMC Corp.
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Great Lakes Chemical Div.

TRITAC-D

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Allied Chemical Corp.

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West Chemical Products, Inc.

VACATE

Diamond Shamrock Chemical Co.

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Uniroyal Chemical, Div. of Uniroyal, Inc.

ALANAP PLUS

Uniroyal Chemical, Div. of Uniroyal, Inc.

AMIBEN

Amchem Products, Inc.

AZAK

Hercules Incorporated
Summers Fertilizers, Inc.

BALAN

Elanco Products Co.

BANDANE

The J. J. Dill Co.
Green Lawn Laboratories, Inc.
Lawnhouse Products, Inc.
O. M. Scott & Sons Co.
Velsicol Chemical Corp.

BANEFIN

Elanco Products Co.
U.S.S. Agri-Chemicals Div.

BETASAN

The J. J. Dill Co.
W. R. Grace & Co.

O. M. Scott & Sons Co.
Stauffer Chemical Co.
U.S.S. Agri-Chemicals Div.

CALCIUM PROPYL ARSENATE

Boyle-Midway Div.
Green Lawn Laboratories, Inc.
Vineland Chemical Co.

CASORON

W. R. Grace & Co.
Great Lakes Chemical Div.
Thompson-Hayward Chemical Co.

CHLORDANE

Armour Agricultural Chemical Co.
Boyle-Midway Div.
Chipman Div., Rhodia, Inc.
Ross Daniels, Inc.
The J. J. Dill Co.
C. B. Dolge Co.
Faesey & Besthoff, Inc.
W. R. Grace & Co.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hub States Chemical & Equip. Corp.
Michlin Chemical Corp.
Niagara Chem. Div., FMC Corp.
S. B. Penick & Co.
B. G. Pratt Co.
Southern Mill Creek Products Co., Inc.
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.
U.S.S. Agri-Chemicals Div.
Velsicol Chemical Corp.

CIPC

Pittsburgh Plate Glass Co.
Thompson-Hayward Chemical Co.

DACTHAL

Amchem Products Inc.
Armour Agricultural Chemical Co.
Diamond Shamrock Chemical Co.
The J. J. Dill Co.
Fence Painter Corp.
W. R. Grace & Co.
Great Lakes Chemical Div.
Lawnhouse Products, Inc.
Southern Mill Creek Products Co., Inc.
Thompson-Hayward Chemical Co.
U.S.S. Agri-Chemicals Div.

DIPHENAMID

Elanco Products Co.
W. R. Grace & Co.
TUCO Products Co.

DNBP

Aceto Chemical Co. Inc.
The Dow Chemical Co.
W. R. Grace & Co.
Niagara Chemical Div., FMC corp.

DYNAP

Uniroyal Chemical, Div. of Uniroyal, Inc.

DYMID

Elanco Products Co.

ENDOTHAL

The J. J. Dill Co.
W. R. Grace & Co.
Pennwalt Chemicals Corp.

EPTAM

Boyle-Midway Div.
The J. J. Dill Co.
Faesey & Besthoff, Inc.
W. R. Grace & Co.
Southern Mill Creek Products Co., Inc.
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.
U.S.S. Agri-Chemicals Div.

HERBAN

W. R. Grace & Co.
Hercules Incorporated
Summers Fertilizers, Inc.
Thompson-Hayward Chemical Co.

HERBISAN

Roberts Chemicals, Inc.

IPC

Aceto Chemical Co. Inc.
Pittsburgh Plate Glass Co.

LEAD ARSENATE

Aceto Chemical Co. Inc.
Allied Chemical Corp.
Chevron Chemical Co., Ortho Div.
Chipman Div., Rhodia, Inc.
The J. J. Dill Co.
Green Lawn Laboratories, Inc.
Niagara Chemical Div., FMC Corp.
Southern Mill Creek Products Co., Inc.
Summers Fertilizers, Inc.

LINURON

The J. J. Dill Co.
E. I. duPont de Nemours & Co., Inc.

PREMERGE

Dow Chemical Co.

PLANAVIN

Shell Chemical Co.

PRE-SAN

Mallinckrodt Chemical Works

PYRAMIN 80-W

Amchem Products, Inc.

SESONE

Amchem Products, Inc.

SIMAZINE

(See Soil Sterilants)

SOLAN

Niagara Chemical Div., FMC Corp.

TILLAM

W. R. Grace & Co.
Stauffer Chemical Co.

TRICALCIUM ARSENATE

Chipman Chemical Div., Rodia, Inc.
The J. J. Dill Co.
Niagara Chemical Div., FMC Corp.
Pennwalt Chemicals Corp.
The Sherwin-Williams Co.

TRIFLURALIN (TREFLAN)

Elanco Products Co.
W. R. Grace & Co.
Southern Mill Creek Products Co., Inc.
Weyerhaeuser Co.

TUPERSAN (SIDURON)

Amchem Products, Inc.
Armour Agricultural Chemical Co.
The J. J. Dill Co.
E. I. duPont de Nemours & Co., Inc.
Summers Fertilizers, Inc.
U.S.S. Agri-Chemicals Div.

●

POSTEMERGENCE

●

AMITROLE-T

Amchem Products, Inc.
American Cyanamid Co.
The J. J. Dill Co.
W. R. Grace & Co.
Great Lakes Chemical Div.
Nalco Chemical Co.
Southern Mill Creek Products Co., Inc.

AMMONIUM METHYL ARSONATE

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The J. J. Dill Co.

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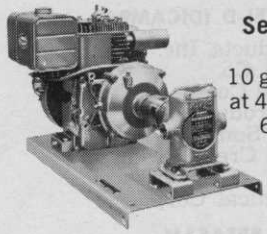
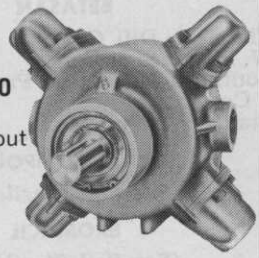


Series 5200 Big Twin
10 gpm output at 400 psi with 6 hp engine



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25 gpm output at 600 psi

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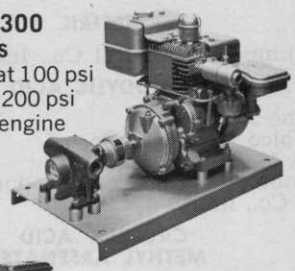
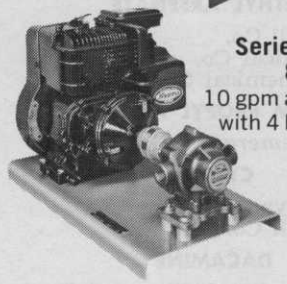
Choice of rubber or nylon rollers



Series 6300 6-Rollers
6.9 gpm at 100 psi
6 gpm at 200 psi
4 hp gas engine



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Nalco Chemical Co.

AMMONIUM METHYL ARSONATE PLUS 2,4-D

W. A. Cleary Corp.

AMMONIUM SULFAMATE

The J. J. Dill Co.
E. I. duPont de Nemours & Co., Inc.
Nalco Chemical Co.
Southern Mill Creek Products Co., Inc.

ANSAR 529

The Ansul Co.

ARSENIC ACID

Chevron Chemical Co., Ortho Div.
Chipman Div., Rhodia, Inc.
Niagara Chemical Div., FMC Corp.
Pennwalt Chemical Corp.
The Sherwin-Williams Co.

ATRAZINE

(See Soil Sterilants)

BANVEL-D (DICAMBA)

Amchem Products, Inc.
The J. J. Dill Co.
Dow Chemical Co.
Lawnhouse Products, Inc.
O. M. Scott & Sons Co.
Southern Mill Creek Products Co., Inc.
Velsicol Chemical Corp.

BETASAN

The J. J. Dill Co.
W. R. Grace & Co.
Southern Mill Creek Products Co., Inc.
Stauffer Chemical Co.

BORATE COMPOUNDS

(See Soil Sterilants)

BROMACIL

(See Soil Sterilants)

BRONATE

Chipman Chemical Co., Inc.

BUCTRIL

Chipman Chemical Co., Inc.

CACODYLIC ACID

The Ansul Co.
Nalco Chemical Co.
O. M. Scott & Sons Co.
Southern Mill Creek Products Co., Inc.

CALCIUM ACID METHYL ARSENATE

The J. J. Dill Co.
Nalco Chemical Co.
Vineland Chemical Co.

CALCIUM PROPYL ARSENATE

(See Preemergence Herbicides)

CYTROL

American Cyanamid Co.
The J. J. Dill Co.

DACAMINE

Diamond Shamrock Chemical Co.
The J. J. Dill Co.
W. R. Grace & Co.
Great Lakes Chemical Div.

DACAMINE 2D/2T,4T

Diamond Shamrock Chemical Co.

DACONATE

The Diamond Shamrock Co.

DALAPON

(See Soil Sterilants)

DINITRO COMPOUNDS

Chevron Chemical Co., Ortho Div.
The Dow Chemical Co.
W. R. Grace & Co.
Niagara Chemical Div., FMC Corp.

DIURON

(See Soil Sterilants)

DMA (DSMA)

The Ansul Co.
Boyle-Midway Div.
Chevron Chemical Co., Ortho Div.
W. A. Cleary Corp.
The Diamond Shamrock Chemical Co.
The J. J. Dill Co.
Lawnhouse Products, Inc.
Nalco Chemical Co.
U.S.S. Agri-Chemicals Div.
Vineland Chemical Co.

DOWPON

The Dow Chemical Co.

ENDOTHAL

(See Preemergence Herbicides)

EPTAM

(See Preemergence Herbicides)

FENAC

(See Soil Sterilants)

FENURON

The J. J. Dill Co.
E. I. duPont de Nemours & Co., Inc.
Nalco Chemical Co.

HCA

(See Soil Sterilants)

HYVAR X BROMACIL

The J. J. Dill Co.
E. I. duPont de Nemours & Co., Inc.
Hub States Chemical & Equip. Corp.
Southern Mill Creek Products Co., Inc.

LINURON

(See Preemergence Herbicides)

MCPA

Aceto Chemical Co., Inc.
Amchem Products, Inc.
Chipman Div., Rhodia Inc.
The Dow Chemical Co.
W. R. Grace & Co.
Great Lakes Chemical Div.
Nalco Chemical Co.

MCPP

Aceto Chemical Co., Inc.
Amchem Products Inc.
Chipman Div., Rhodia Inc.
W. A. Cleary Corp.
The J. J. Dill Co.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Nor-Am Agric. Products Co.
Shepard Chemical Industries, Inc.
U.S.S. Agri-Chemicals Div.
Vineland Chemical Co.

MILOGARD (PROPAZINE)

The J. J. Dill Co.
Geigy Agricultural Chemicals

MONURON

(See Soil Sterilants)

MSMA

Allied Chemical Corp.
The Ansul Co.
W. A. Cleary Corp.
Diamond Shamrock Chemical Co.
Great Lakes Chemical Div.
Nalco Chemical Co.
Southern Mill Creek Products Co., Inc.
Vineland Chemical Co.

PARAQUAT

Chevron Chemical Co., Ortho Div.

PENTACHLOROPHENOL

The J. J. Dill Co.
The Dow Chemical Co.
W. R. Grace & Co.
Hub States Chemical & Equip. Corp.
Nalco Chemical Co.
Reichhold Chemicals, Inc.
Southern Mill Creek Products Co., Inc.
Thompson-Hayward Chemical Co.
Vulcan Materials Co.

PHENYLMERCURIC ACETATE (PMA)

Chemley Products
W. A. Cleary Corp.
The J. J. Dill Co.
Green Lawn Laboratories, Inc.
Mallinckrodt Chemical Works
Southern Mill Creek Products Co., Inc.
U.S.S. Agri-Chemicals Div.
Vineland Chemical Co.

PRAMITOL

(See Soil Sterilants)

PROPAZINE

The J. J. Dill Co.
W. R. Grace & Co.

PYRAMIN 80-W

(See Preemergence Herbicides)

SILVEX

Amchem Products Inc.
Boyle-Midway Div.
Chipman Div., Rhodia, Inc.
Diamond Shamrock Chemicals Co.
The J. J. Dill Co.
The Dow Chemical Co.
Green Lawn Laboratories, Inc.
Hercules Incorporated
Nalco Chemical Co.
B. G. Pratt Co.
Southern Mill Creek Products Co., Inc.

SODIUM ARSENITE

(See Soil Sterilants)

SODIUM CACODYLATE

The Ansul Co.
Nalco Chemical Co.

TCA

(See Soil Sterilants)

THISTROL

Amchem Products, Inc.

TILLAM

(See Preemergence Herbicides)

TORDON

The Dow Chemical Co.
W. R. Grace & Co.

TRYSBEN (TBA)

The J. J. Dill Co.
E. I. duPont de Nemours & Co., Inc.
Nalco Chemical Co.

2,4-D

Amchem Products, Inc.
Boyle-Midway Div.
Chevron Chemical Co., Ortho Div.
Chipman Div., Rhodia, Inc.
Diamond Shamrock Chemical Co.
The J. J. Dill Co.

C. B. Dolge Co.
The Dow Chemical Co.
Fence Painter Corp.
W. R. Grace & Co.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hercules Incorporated
Hub States Chemical & Equip. Co.
Lawnhouse Products, Inc.
Monsanto Co.
Nalco Chemical Co.
Pennwalt Chemical Corp.
B. G. Pratt Co.
O. M. Scott & Sons Co.
Southern Mill Creek Products Co., Inc.
Stauffer Chemical Co.
Stull Chemical Co.
Summers Fertilizers, Inc.
Thompson-Hayward Chemical Co.
U.S.S. Agri-Chemicals Div.
West Chemical Products Inc.

2,4,5-T

Amchem Products, Inc.
Central Solvents & Chemicals Co.
Chevron Chemical Co., Ortho Div.
Chipman Div., Rhodia Inc.
Diamond Shamrock Chemical Co.
The J. J. Dill Co.
The Dow Chemical Co.
W. R. Grace & Co.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hercules Incorporated
Hub States Chemical & Equip. Co.
Monsanto Co.
Nalco Chemical Co.
B. G. Pratt Co.
Southern Mill Creek Products Co., Inc.
Stauffer Chemical Co.
Stull Chemical Co.
Thompson-Hayward Chemical Co.
U.S.S. Agri-Chemicals Div.

UROX

(See Soil Sterilants)

WEED FREE SW, 235

Chapman Chemical Co.

●

ALGAECIDES

●

CUTRINE

Applied Biochemists, Inc.

SWIMTRINE

Applied Biochemists, Inc.

●

AQUATIC HERBICIDES

●

AMITROLE

Amchem Products, Inc.
American Cyanamid Co.
The J. J. Dill Co.
Great Lakes Chemical Div.
Southern Mill Creek Products Co., Inc.

AMITROLE-T

(See Preemergence Herbicides)

AMMONIUM SULFAMATE

(See Preemergence Herbicides)

AQUALIN

Shell Chemical Co.

AQUATHOL

The J. J. Dill Co.
W. R. Grace & Co.
Hub States Chemical & Equip. Corp.
Pennwalt Chemicals Corp.
Southern Mill Creek Products Co., Inc.
U.S.S. Agri-Chemicals Div.

AQUATHOL PLUS

The J. J. Dill Co.
W. R. Grace & Co.
Pennwalt Chemicals Corp.
U.S.S. Agri. Chemicals Div.

CALCIUM HYPOCHLORITE

Pennwalt Chemicals Corp.
Pittsburgh Plate Glass Co.
Robeco Chemicals, Inc.

CASORON

(See Preemergence Herbicides)

COPPER SULFATE

Chevron Chemical Co., Ortho Div.
The J. J. Dill Co.
Green Lawn Laboratories, Inc.
Niagara Chemical Div., FMC Corp.
Phelps Dodge Refining Corp.
Robeco Chemicals, Inc.
Southern Mill Creek Products Co., Inc.
Vineland Laboratories, Inc.

CROP RIDER (20% Aqua Granules)

Diamond Shamrock Chemical Co.

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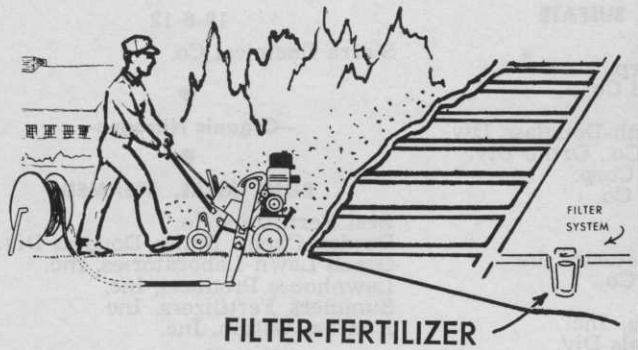
lawn systems



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DACAMINE

Diamond Shamrock Chemical Co.
The J. J. Dill Co.
Great Lakes Chemical Div.
Southern Mill Creek Products Co., Inc.

DALAPON

(See Soil Sterilants)

DICHLONE

Aceto Chemical Co. Inc.
Allied Chemical Corp.
The J. J. Dill Co.
Naugatuck Chemical Div.
Niagara Chemical Div., FMC Corp.

DIQUAT

Chevron Chemical Co., Ortho Div.
The J. J. Dill Co.
W. R. Grace & Co.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hub States Chemical & Equip. Corp.
Southern Mill Creek Products Co., Inc.

DIURON

The J. J. Dill Co.
Southern Mill Creek Products Co., Inc.

ERBON

The Dow Chemical Co.

FENAC

Amchem Products, Inc.

HYDROTHOL

The J. J. Dill Co.
Pennwalt Chemicals Corp.

MCPA

(See Postemergence Herbicides)

ORTHODICHLOROBENZENE

Pittsburgh Plate Glass Co.
Robeco Chemicals, Inc.

POTASSIUM ENDOTHAL

The J. J. Dill Co.
Pennwalt Chemicals Corp.

PHYGON XL

The J. J. Dill Co.

SILVEX

(See Postemergence Herbicides)

SODIUM ARSENITE

(See Soil Sterilants)

2,4-D

(See Postemergence Herbicides)

2,4,5-T

(See Postemergence Herbicides)

2-(2,4-DB)

Amchem Products, Inc.
Chipman Div., Rhodia, Inc.
Southern Mill Creek Products Co., Inc.
Thompson-Hayward Chemical Co.

COMMERCIAL FERTILIZERS

NITROGEN SOURCES

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—Fast Release—

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AMMONIA, ANHYDROUS

Agrico Chemical Co.
Allied Chemical Corp.
American Cyanamid Co.
Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Columbia Nitrogen Corp.
The Dow Chemical Co.
E. I. duPont de Nemours & Co., Inc.
W. R. Grace & Co.
Hercules Incorporated
Monsanto Co.
Phillips Petroleum Co.
Pittsburgh Plate Glass Co.
Sohio Chemical Co.
Tennessee Corp.
U.S.S. Agri-Chemicals Div.
Vistron Corp.
Vulcan Materials Co.

AMMONIUM NITRATE

Agrico Chemical Co.
Allied Chemical Corp.
American Cyanamid Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Columbia Nitrogen Corp.
W. R. Grace & Co.
Green Lawn Laboratories, Inc.
Hercules Incorporated
International Minerals & Chem. Corp.
Phillips Petroleum Co.
Sohio Chemical Co.
Southern Mill Creek Products Co., Inc.
Summers Fertilizers, Inc.
U.S.S. Agri-Chemicals Div.
Vistron Corp.

AMMONIUM PHOSPHATE

Agrico Chemical Co.
Allied Chemical Corp.
American Cyanamid Co.
Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Fertilla Co.
W. R. Grace & Co.
Green Lawn Laboratories, Inc.
Monsanto Co.
Phillips Petroleum Co.
Stauffer Chemical Co.
Summers Fertilizers, Inc.
Tennessee Corp.

AMMONIUM SULFATE

Agrico Chemical Co.
Allied Chemical Corp.
American Cyanamid Co.
Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Columbia Nitrogen Corp.
The Dow Chemical Co.
Fertilla Co.
W. R. Grace & Co.
Green Lawn Laboratories, Inc.
Phillips Petroleum Co.
Rohm and Haas Co.
Summers Fertilizers, Inc.
U.S.S. Agri-Chemicals Div.
Vistron Corp.

AQUA AMMONIA

Allied Chemical Corp.
American Cyanamid Co.
Best Fertilizers Co.
Chevron Chemical Co., Ortho Div.
Columbia Nitrogen Corp.
The Dow Chemical Co.
W. R. Grace & Co.
Green Lawn Laboratories, Inc.
Hercules Incorporated
Pennwalt Chemicals Corp.
Sohio Chemical Co.
Vistron Corp.

CALCIUM NITRATE

Best Fertilizers Co.
Columbia Nitrogen Corp.
Green Lawn Laboratories, Inc.
Southern Mill Creek Products Co., Inc.
U.S.S. Agri-Chemicals Div.

SODIUM NITRATE

Southern Mill Creek Products Co., Inc.
Summers Fertilizers, Inc.
U.S.S. Agri-Chemicals Div.

UREA

Agrico Chemical Co.
Allied Chemical Corp.
American Cyanamid Co.
Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Columbia Nitrogen Corp.
E. I. duPont de Nemours & Co., Inc.
Fertilla Co.
W. R. Grace & Co.
Green Lawn Laboratories, Inc.
Hercules Incorporated
International Minerals & Chem. Corp.
Phillips Petroleum Co.
Sohio Chemical Co.
Southern Mill Creek Products Co., Inc.
Summers Fertilizers, Inc.
U.S.S. Agri-Chemicals Div.
Vistron Corp.

●

—Slow Release—

●

UREA-FORMALDEHYDE

Agrico Chemical Co.
Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
E. I. duPont de Nemours & Co., Inc.
Green Lawn Laboratories, Inc.
Hercules Incorporated
International Minerals & Chem. Corp.
Lawnhouse Products, Inc.
S & D Products Inc.
Southern Mill Creek Products Co., Inc.
Summers Fertilizers, Inc.

OSMOCOTE, 18-6-12

18-6-12

Sierra Chemical Co.

●

—Organic Nitrogen—

●

BONE MEAL, STEAMED

Best Fertilizers Co.
Borden Chem., Smith-Douglas Div.
Green Lawn Laboratories, Inc.
Lawnhouse Products, Inc.
Summers Fertilizers, Inc.
Andrew Wilson, Inc.

COTTONSEED MEAL

Borden Chem., Smith-Douglass Div.
Summers Fertilizers, Inc.
Andrew Wilson, Inc.

MANURE, CATTLE

Fertilla Co.

MILORGANITE

Sewerage Commission of Milwaukee

NITRO-GANO

Wilbur-Ellis Co.

PROCESSED SLUDGE

Agrico Chemical Co.
Lawnhouse Products, Inc.
Southern Mill Creek Products Co., Inc.

Summers Fertilizers, Inc.
U.S.S. Agri-Chemicals Div.

●

POTASH SOURCES

●

POTASSIUM CARBONATE

Hooker Chemical Corp.

POTASSIUM CHLORIDE

Agrico Chemical Co.
American Potash & Chemical Corp.
Borden Chem., Smith-Douglass Div.
Green Lawn Laboratories, Inc.
Kalium Chemicals, Ltd.
Phillips Petroleum Co.
Southwest Potash Corp.
Summers Fertilizers, Inc.
U.S. Borax & Chemical Co.

POTASSIUM NITRATE

Agrico Chemical Co.
Borden Chem., Smith-Douglass Div.
Green Lawn Laboratories, Inc.
Southern Mill Creek Products Co., Inc.
Southwest Potash Div.
Summers Fertilizers, Inc.

POTASSIUM SULFATE

American Potash & Chemical Corp.
Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Green Lawn Laboratories, Inc.
Mallinckrodt Chemical Works
Summers Fertilizers, Inc.

●

MIXED N-P-K TYPES

●

MAG AMP

W. R. Grace & Co.

SOLID

Agrico Chemical Co.
Agriform International Chemicals Inc.
Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Columbia Nitrogen Corp.
Davison Chemical Div.
Green Lawn Laboratories, Inc.
International Minerals & Chem. Corp.
Loamite Corp.
Northrup, King & Co.
Robert B. Peters Co., Inc.
Phillips Petroleum Co.
Plant Marvel Laboratories
Ra-Pid-Grow Corp.
Southern Mill Creek Products Co., Inc.
Summers Fertilizers, Inc.
Wilbur-Ellis Co.

LIQUID

Agrico Chemical Co.
Best Fertilizers Co.
Chevron Chemical Co. Ortho Div.
Cloro-Spray Corp.
Columbia Nitrogen Corp.
Green Lawn Laboratories, Inc.
Growers Chemical Corp.
Hydroponic Chemical Co., Inc.
Kem Mfg. Co.
Phillips Petroleum Co.
Southern Mill Creek Products Co., Inc.
Wilbur-Ellis Co.

PLASTIC COATED

Borden Chem., Smith-Douglass Div.

●

PHOSPHATE SOURCES

●

CONCENTRATED

Agrico Chemical Co.
American Cyanamid Co.
Best Fertilizer Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Green Lawn Laboratories, Inc.
International Minerals & Chem. Corp.
Phillips Petroleum Co.
Southern Mill Creek Products Co., Inc.
Stauffer Chemical Co.
Tennessee Corp.

ROCK PHOSPHATES

Agrico Chemical Co.
American Cyanamid Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
W. R. Grace & Co.
International Minerals & Chem. Corp.
Stauffer Chemical Co.
Tennessee Corp.

●

—Ammonium Phosphates—

●

AMMONIUM PHOSPHATE-NITRATE

Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Columbia Nitrogen Corp.
Green Lawn Laboratories, Inc.
Southern Mill Creek Products Co., Inc.

AMMONIUM PHOSPHATE-SULFATE

Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Columbia Nitrogen Corp.
Phillips Petroleum Co.

AMMONIUM PHOSPHATE-UREA

Borden Chem., Smith-Douglass Div.
Green Lawn Laboratories, Inc.

DIAMMONIUM PHOSPHATE

Agrico Chemical Co.
Allied Chemical Corp.
American Cyanamid Co.
Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Columbia Nitrogen Corp.
W. R. Grace & Co.
Green Lawn Laboratories, Inc.
Hooker Chemical Co.
International Minerals & Chem. Co.
Monsanto Co.
Phillips Petroleum Co.
Southern Mill Creek Products Co., Inc.
Stauffer Chemical Co.
Summers Fertilizers, Inc.
Tennessee Corp.

MONOAMMONIUM PHOSPHATE

Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
W. R. Grace & Co.
Green Lawn Laboratories, Inc.
Stauffer Chemical Co.
Summers Fertilizers, Inc.
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Columbia Nitrogen Corp.
W. R. Grace & Co.
Green Lawn Laboratories, Inc.
International Minerals & Chem. Corp.
Phillips Petroleum Co.
Stauffer Chemical Co.
Tennessee Corp.
U.S. Industrial Chemicals Co.

pH CONTROLLERS

ALUMINUM SULFATE

International Minerals & Chem. Corp.
Tennessee Corp.
Andrew Wilson, Inc.

AMMONIUM POLYSULFIDE

Allied Chemical Corp.

AMTHIO

Allied Chemical Corp.

CALCITE, BURNED

Engelhard Minerals & Chemicals Co.

CALCITE, HYDRATED

Engelhard Minerals & Chemicals Co.

CALCIUM CARBONATE

Diamond Alkali Co.
Engelhard Minerals & Chemicals Co.
Green Lawn Laboratories, Inc.
Pittsburgh Plate Glass Co.

DOLOMITE

Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Summers Fertilizers, Inc.

GYPSUM (CALCIUM SULFATE)

Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Summers Fertilizers, Inc.

LIME, CONCENTRATE

Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Engelhard Minerals & Chemicals Co.

LIMESTONE

Engelhard Minerals & Chemicals Co.
Summers Fertilizers, Inc.
U.S.S. Agri-Chemicals Div.

LIQUID FISH

Best Fertilizers Co.
Chevron Chemical Co., Ortho Div.

SULFUR

Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
Chevron Chemical Co., Ortho Div.
Southern Mill Creek Products Co., Inc.
Wilbur-Ellis Co.

SOIL CONDITIONERS

BARK

Best Fertilizers Co.
Weyerhaeuser Co.

CALCINED CLAY

Eagle-Picher Industries, Inc.
Engelhard Minerals & Chemicals Co.
Floridin Co.
Oil-Dri Corp. of America
Southern Mill Creek Products Co., Inc.
Waverly Petroleum Products Co.
Wyandotte Chemicals Corp.

CANE

Fertilla Co.

CELATOM

Eagle-Picher Industries, Inc.

CORN COBS

Borden Chem., Smith-Douglass Div.
Green Lawn Laboratories, Inc.

DIATOMITE

Eagle-Picher Industries, Inc.
JohnsManville Corp.

LOAMITE

Loamite Corp.

PEAT-HUMUS

Premier Peat Moss Corp.
Western Peat Co.

PEAT MOSS

Best Fertilizers Co.
Premier Peat Moss Corp.

PERLITE

Zonolite Div., W. R. Grace & Co.

VERMICULITE

American Vermiculite Corp.
Borden Chem., Smith-Douglass Div.
Zonolite Div., W. R. Grace & Co.

WOOD CHIPS

J. T. Dimmick Forest Co.
Fitchburg Engineering Corp.

MULCHES

CALCINED ABSORBENT CLAY

(See Soil Conditioners)

EROSION CONTROL MULCHES

American Excelsior Corp.
Conwed Corporation
J. T. Dimmick Forest Co.
Engelhard Minerals & Chemicals Co.
The Larutan Corp.
Reinco, Inc.
Weyerhaeuser Co.

LANDSCAPE MULCHES

American Excelsior Corp.
Best Fertilizers Co.
Conwed Corporation
J. T. Dimmick Forest Co.
Fitchburg Engineering Corp.
Premier Peat Moss Corp.
Weyerhaeuser Co.

SEEDING MULCHES

American Excelsior Corp.
Conwed Corporation
International Paper Co.
Troy Blanket Mills

PERLITE

(See Soil Conditioners)

VERMICULITE

(See Soil Conditioners)

MISCELLANEOUS COMPOUNDS

ANTICAKING CONDITIONERS

Armour Industrial Chemicals Co.
Eagle-Picher Industries, Inc.
Engelhard Minerals & Chemicals Co.
The Larutan Corp.
Pittsburgh Plate Glass Co.
Waverly Petroleum Products Co.
Zonolite Div., W. R. Grace & Co.

ANTIDESICCANT SPRAYS

Aquatrols Corp. of America
W. A. Cleary Corp.
The J. J. Dill Co.
Nursery Specialty Products, Inc.
Andrew Wilson, Inc.

CHEMICAL TRIMMER

Chapman Chemical Co.

CHRISTMAS TREE PAINT DEFOLIANT (Non-Injurious)

C & R Products Development, Inc.
Niagara Chemical Div., FMC Corp.

REPELLENTS

Sudbury Laboratory, Inc.

SEED, GRASS, COVERS & PLANT MATERIALS

Asgrow Seed Co.
Chanderlin Seed Co.
Cole Nursery Co.
Elanco Co.
Ferry Morse Seed Co.
Green Lawn Laboratories, Inc.
Jacklin Seed Co.
Maple Leaf Mills, Ltd.
McGovern Sod Farms
Merion Bluegrass Assoc.
Mock Seed Co.
Nunes Turfgrass Nurseries
Northrup, King & Co.
Oregon Chewings Fescue & Creeping Red Fescue Comm.
Oregon Highland Bentgrass Comm.
Oregon Fine Leaf Fescue Commission
Oregon Orchardgrass Seed Producers Comm.
O. M. Scott & Sons Co.
South Dakota Kentucky Bluegrass Assn.
Stanford Seed Co.
Vaughan's Seed Co.
Whitney Seed Co.

STUMP REMOVAL COMPOUNDS

Bartlett Manufacturing Co.

TREE WOUND PAINT

Asplundh Tree Expert Co.
John Bacon Corp.
Bartlett Manufacturing Co.
Borden Chem., Smith-Douglass Div.
Boyle-Midway Div.
Hydroponic Chemical Co., Inc.
Samuel Cabot, Inc.
B. G. Pratt Co.
Seymour Smith & Son, Inc.
Andrew Wilson, Inc.

TREE KILLERS

The Ansul Co. (Silvisar 510, 550)
Chipman Div., Rhodia Inc.
The J. J. Dill Co.
The Dow Chemical Co.
Fence Painter Corp.
Green Lawn Laboratories, Inc.

TURF COLORING COMPOUNDS

W. A. Cleary Corp.
The J. J. Dill Co.
Green Lawn Laboratories, Inc.
The Gregg Co.
O. F. Linck Div., Walco-Linck Corp.
Mallinckrodt Chemical Works
Verde Lawn, Inc.

WETTING AGENTS

W. A. Cleary Corp.

CARRIERS

CELATOM

Eagle-Picher Industries, Inc.

DUSTS, NATURAL

Eagle-Picher Industries, Inc.
Engelhard Minerals & Chemicals Co.
Floridin Co.
Green Lawn Laboratories, Inc.
Pittsburgh Plate Glass Co.

GRANULES, NATURAL

American Talc Co.
American Vermiculite Corp.
Englehard Minerals & Chemicals Co.
Floridin Co.
Waverly Petroleum Products Co.

LIQUID (SOLVENTS)

American Oil Co.
Green Lawn Laboratories, Inc.
Gulf Oil Corp.
Humble Oil & Refining Co.
Signal Oil & Gas Co.
Tenneco Oil Co.
Vulcan Materials Co.

VERMICULITE

(See Soil Conditioners)

DILUENTS

CALCIUM CARBONATE

Engelhard Minerals & Chemicals Co.

DIATOMACEOUS EARTH

Eagle-Picher Industries, Inc.
Johns-Manville Corp.

FULLERS EARTH

Engelhard Minerals & Chemicals Co.
Floridin Co.
Waverly Petroleum Products Co.

GRANULES, GENERAL

Engelhard Minerals & Chemicals Co.
Floridin Co.
Green Lawn Laboratories, Inc.

KAOLINS (CLAY)

Engelhard Minerals & Chemicals Co.

TALC

Amercian Talc Co.
Bonide Chemical Co., Inc.
Engelhard Minerals & Chemicals Co.

VERMICULITE

(See Soil Conditioners)

TRACE ELEMENTS

BORAX

American Potash & Chemical Corp.
Borden Chem., Smith-Douglass Div.
Green Lawn Laboratories, Inc.
Lawnhouse Products, Inc.
U.S. Borax & Chemical Corp.

BORO-SPRAY

American Potash & Chemical Corp.

COPPER CHELATE

Borden Chem., Smith-Douglass Div.
The J. J. Dill Co.
Geigy Agricultural Chemicals
Green Lawn Laboratories, Inc.
Lawnhouse Products, Inc.
Niagara Chemical Div., FMC Corp.

COPPER SULFATE

Borden Chem., Smith-Douglass Div.

IRON CHELATE

Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
The J. J. Dill Co.
Geigy Agricultural Chemicals
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Lawnhouse Products, Inc.
Niagara Chemical Div., FMC Corp.
Tennessee Corp.
Vineland Laboratories, Inc.

IRON, MICRONIZED

The J. J. Dill Co.
Green Lawn Laboratories, Inc.

IRON SULFATE

Best Fertilizers Co.
Borden Chem., Smith-Douglass Div.
The J. J. Dill Co.
Eagle-Picher Industries, Inc.
Green Lawn Laboratories, Inc.
Mallinckrodt Chemical Works
Phillips Petroleum Co.
Tennessee Corp.

MAGNESIUM CARBONATE

Borden Chem., Smith-Douglass Div.
Lawnhouse Products, Inc.

MAGNESIUM-SULFATE

The J. J. Dill Co.
Lawnhouse Products, Inc.

MANGANESE CHELATE

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Robeco Chemicals, Inc.
Tennessee Corp.
Vineland Laboratories, Inc.

GRANULAR ORGANIC IRON COMPLEX

Eagle-Picher Industries, Inc.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.

MANGANESE SULFATE

The J. J. Dill Co.
Eagle-Picher Industries, Inc.
Eastman Chemical Products, Inc.
Green Lawn Laboratories, Inc.
Lawnhouse Products, Inc.
Tennessee Corp.

MANGANOUS OXIDE

Green Lawn Laboratories, Inc.
Tennessee Corp.

MOLYBDENUM

Borden Chem., Smith-Douglass Div.
Green Lawn Laboratories, Inc.
Lawnhouse Products, Inc.

MULTI-KEMIN

Niagara Chemical Div., FMC Corp.

SOLUBOR

U.S. Borax & Chemical Corp.

ZINC CHELATE

Best Fertilizers Co.
Borden Cnem., Smith-Douglass Div.
The J. J. Dill Co.
Geigy Agricultural Chemicals
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Lawnhouse Products, Inc.
Niagara Chemical Div., FMC Corp.

ZINC SULFATE

Allied Chemical Corp.
The J. J. Dill Co.
Eagle-Picher Industries, Inc.
Green Lawn Laboratories, Inc.
Phillips Petroleum Co.
The Sherwin-Williams Co.
Tennessee Corp.

COMBINATION OF TRACE ELEMENTS

Green Lawn Laboratories, Inc.
Niagara Chemical Div., FMC Corp.

SURFACE ACTIVE AGENTS

AD-KIL

R. H. Bogle Co.

DETERGENTS, GENERAL

Armour Industrial Chemical Co.
Atlas Chemical Industries, Inc.
Cloro-Spray Corp.
C. B. Dolge Co.
Emery Industries, Inc.
General Aniline & Film Corp.
Retzloff Chemical Co.
Rohm and Haas Co.
Stepan Chemical Co.
Thompson-Hayward Chemical Co.

EMULSIFIERS

Armour Industrial Chemical Co.
Atlas Chemical Industries, Inc.
Cloro-Spray Corp.
The J. J. Dill Co.
Emery Industries, Inc.
General Aniline & Film Corp.
Great Lakes Chemical Div.
Retzloff Chemical Co.
Rohm and Haas Co.
Stepan Chemical Co.
Stull Chemical Co.
Thompson-Hayward Chemical Co.

INVERT EMULSION ADJUVANTS

K-D Manufacturing Co.
Stull Chemical Co.

PLYAC

Allied Chemical Corp.

SPREADER-STICKERS

Allied Chemical Corp.
Aquatrols Corp. of America
Atlas Chemical Industries, Inc.
Chipman Div., Rhodia Inc.
W. A. Cleary Corp.
Colloidal Products Corp.
The J. J. Dill Co.
E. I. duPont de Nemours & Co., Inc.
Emery Industries, Inc.
General Aniline & Film Corp.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Niagara Chemical Div., FMC Corp.
B. G. Pratt Co.
Retzloff Chemical Co.
Rohm and Haas Co.
Southern Mill Creek Products Co., Inc.
Stepan Chemical Co.
Stull Chemical Co.
Thompson-Hayward Chemical Co.
Thuron Industries, Inc.
Wilbur-Ellis Co.
Andrew Wilson, Inc.

STABILIZERS

Armour Industrial Chemical Co.
Atlas Chemical Industries, Inc.
Colloidal Products Corp.
Emery Industries, Inc.
General Aniline & Film Corp.
Rohm and Haas Co.

WETTING AGENTS

American Cyanamid Co.
Aquatrols Corp. of America
Armour Industrial Chemical Co.
Atlas Chemical Industries, Inc.
Chipman Div., Rhodia Inc.
W. A. Cleary Corp.
Cloro-Spray Corp.
Colloidal Products Corp.
The J. J. Dill Co.
Emery Industries, Inc.
General Aniline & Film Corp.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
The Larutan Corp.
Niagara Chemical Div., FMC Corp.
Retzloff Chemical Co.
Roberts Chemicals, Inc.
Rohm and Haas Co.
Southern Mill Creek Products Co., Inc.
Stepan Chemical Co.
Thompson-Hayward Chemical Co.
Thuron Industries, Inc.
Vineland Chemical Co.
"Water In," Inc.
Weyerhaeuser Co.

SPRAY THICKENING AGENTS

ATTAGELS

Englehard Minerals & Chemicals Co.

DACAGIN

Diamond Shamrock Chemical Co.
Great Lakes Chemical Div.

INVERT EMULSION ADJUVANTS

(See Emulsifiers)

NORBAK

The Dow Chemical Co.

VISTIK

Hercules Incorporated

GROWTH REGULATORS

TRE-HOLD

Amchem Products, Inc.

GROWTH RETARDANTS

B-NINE

Uniroyal Chemical, Div. of Uniroyal, Inc.

CYCOCEL

American Cyanamid Co.

GIBREL

Metasol Products, Merck & Co.

MALEIC HYDRAZIDE

Aceto Chemical Co. Inc.
The Ansul Co.
W. R. Grace & Co.
Naugatuck Chemical Div.
Uniroyal Chemical, Div. of Uniroyal, Inc.

PHOSFON

Mobil Chemical Co.

RETARD

The Ansul Co.

STREPTOMYCIN

Metasol Products, Merck & Co.

SOIL FUMIGANTS & NEMATICIDES

BEDRENCH

Niagara Chemical Div., FMC Corp.

BROMIDE

Great Lakes Chemical Div.
Dow Chemical Co.

BROMODINE

C & R Products Development, Inc.

BROM-O-GAS

Great Lakes Chemical Div.

BROZONE

Dow Chemical Co.

CHLOROPICRIN

The J. J. Dill Co.
The Dow Chemical Co.
Great Lakes Chemical Div.
Michigan Chemical Co.
Southern Mill Creek Products Co., Inc.

DASANIT

Chemagro Corp.
Southern Mill Creek Products Co., Inc.

D-D (VIDDEN-D)

The Dow Chemical Co.
Great Lakes Chemical Div.
Shell Chemical Co., Ag. Chem. Div.
Stauffer Chemical Co.

DICHLOROPROPENE COMPOUNDS

The Dow Chemical Co.

DOWFUME

The J. J. Dill Co.
The Dow Chemical Co.
Southern Mill Creek Products Co., Inc.
U.S.S. Agri-Chemicals Div.

ETHYLENE DIBROMIDE

The J. J. Dill Co.
The Dow Chemical Co.
Ferguson Fumigants, Inc.
Great Lakes Chemical Div.
Hub States Chemical & Equip. Corp.
Michigan Chemical Co.
Niagara Chemical Div., FMC Corp.
Southern Mill Creek Products Co., Inc.
Velsicol Chem. Corp.

FUMAZONE (NEMAGON)

The J. J. Dill Co.
The Dow Chemical Co.
Southern Mill Creek Products Co., Inc.

METHYL BROMIDE

The J. J. Dill Co.
The Dow Chemical Co.
Ferguson Fumigants, Inc.
W. R. Grace & Co.
Great Lakes Chemical Div.
Hub States Chemical & Equip. Corp.
Michigan Chemical Co.
Niagara Chemical Div., FMC Corp.
Southern Mill Creek Products Co., Inc.
U.S.S. Agri-Chemicals Div.
Velsicol Chemical Corp.
Vulcan Materials Co.

MYLONE

Union Carbide Corp.

NEMAGON

Shell Chemical Co., Ag Chem. Div.
U.S.S. Agri-Chemicals Div.

SOILBROM—85

Great Lakes Chemical Div.

SAROLEX

Armour Agricultural Chemical Co.
Geigy Agricultural Chemicals
Southern Mill Creek Products Co., Inc.
U.S.S. Agri-Chemicals Div.

TELONE

The Dow Chemical Co.

TERR-O-GAS

Great Lakes Chemical Div.

VAPAM (VPM)

The J. J. Dill Co.
E. I. duPont de Nemours & Co., Inc.
W. R. Grace & Co.
Stauffer Chemical Co.
U.S.S. Agri-Chemicals Div.

VIDDEN D

Dow Chemical Co.

VORLEX

W. R. Grace & Co.
Great Lakes Chemical Div.
Nor-Am Agric. Products, Inc.

VPM

E. I. duPont de Nemours & Co., Inc.

MITICIDES

ACARABEN

Geigy Agricultural Chemicals

ARAMITE

Aceto Chemical Co., Inc.
The J. J. Dill Co.
Naugatuck Chemical Div.
Niagara Chemical Div., FMC Corp.

BIDRIN

W. R. Grace & Co.
B. G. Pratt Co.
Shell Chemical Co., Ag. Chem. Div.

BINAPACRYL

Niagara Chemical Div., FMC Corp.

CHLOROBENZILATE

Aceto Chemical Co., Inc.
The J. J. Dill Co.
Hub States Chemical & Equip. Corp.

CYGON

Aceto Chemical Co., Inc.
The J. J. Dill Co.
W. R. Grace & Co.
Hub States Chemical & Equip. Corp.
B. G. Pratt Co.
Southern Mill Creek Products Co., Inc.
Thompson-Hayward Chemical Co.

DELNAV

Great Lakes Chemical Div.
Hercules Incorporated
Thompson-Hayward Chemical Co.

DIBROM

Chevron Chemical Co., Ortho Div.
Chipman Chemical Co.
The J. J. Dill Co.
W. R. Grace & Co.
Great Lakes Chemical Div.
Hub States Chemical & Equip. Corp.
Southern Mill Creek Products Co., Inc.
Stauffer Chemical Co.

DIMITE

The Sherwin-Williams Co.

ETHION

The J. J. Dill Co.
Niagara Chemical Div., FMC Corp.
B. G. Pratt Co.
U.S.S. Agri-Chemicals Div.

GENITE

Allied Chemical Corp.
W. R. Grace & Co.

KARATHANE

(See Fungicides)

KELTHANE

The J. J. Dill Co.
W. R. Grace & Co.
Hub States Chemical & Equip. Corp.
Rohm and Haas Co.

MORESTAN

Chemagro Corp.
The J. J. Dill Co.

MOROCIDE (BINAPACRYL)

W. R. Grace & Co.
Niagara Chemical Div., FMC Corp.

PENTAC

Great Lakes Chemical Div.
Hooker Chemical Corp.

SYSTOX

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TEDION

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W. R. Grace & Co.
Great Lakes Chemical Div.
Niagara Chemical Div., FMC Corp.
Thompson-Hayward Chemical Co.

TOXAPHENE

Chipman Chemical Co., Inc.
W. R. Grace & Co.
Hercules, Inc.
Niagara Chemical Div., FMC Corp.
Thompson-Hayward Chemical Co.

TRITHION

The J. J. Dill Co.
W. R. Grace & Co.
Stauffer Chemical Co.

INSECTICIDES

ABATE

American Cyanamid Co.
The J. J. Dill Co.
W. R. Grace & Co.
Hub States Chemical & Equip. Corp.
Michlin Chemical Corp.

AKTON

Shell Chemical Co., Agr. Chem. Div.
Southern Mill Creek Products Co., Inc.

ALDRIN

Chipman Div., Rhodia, Inc.
The J. J. Dill Co.
Great Lakes Chemical Div.
Hub States Chemical & Equip. Corp.
Niagara Chemical Div., FMC Corp.
Shell Chemical Co., Ag. Chem. Div.
Southern Mill Creek Products Co., Inc.
Summers Fertilizers, Inc.
Thompson-Hayward Chemical Co.

ARSENICAL COMPOUNDS

Allied Chemical Corp.
Chipman Div., Rhodia, Inc.
Green Lawn Laboratories, Inc.
The J. J. Dill Co.
Niagara Chemical Div., FMC Corp.
Pennwalt Chemicals Corp.
The Sherwin-Williams Co.
Southern Mill Creek Products Co., Inc.

ASPON

Faesey & Besthoff, Inc.
Southern Mill Creek Products Co., Inc.
Stauffer Chemical Co.

AZINPHOSMETHYL (GUTHION*)

Chemagro Corp.
The J. J. Dill Co.
Niagara Chemical Div., FMC Corp.
Southern Mill Creek Products Co., Inc.

BACILLUS THURINGIENSIS

Bioferm Corp.
International Minerals & Chemical Corp.
Pennsalt Chemical Corp.

BAYGON (BAYER, 39007)

Chemagro Corp.
The J. J. Dill Co.
W. R. Grace & Co.
Hub States Chemical & Equip. Corp.
Southern Mill Creek Products Co., Inc.
Thompson-Hayward Chemical Co.
West Chemical Products, Inc.

BAYTEX

Chemagro Corp.
The J. J. Dill Co.
W. R. Grace & Co.
Southern Mill Creek Products Co., Inc.

BETANAPHTHOL

The Sherwin-Williams Co.
Allied Chemical Corp.
Chipman Div., Rhodia, Inc.
Diamond Shamrock Co.
The J. J. Dill Co.

BHC

W. R. Grace & Co.
Hooker Chemical Corp.
Hub States Chemical & Equip. Corp.
Niagara Chemical Div., FMC Corp.
Southern Mill Creek Products Co., Inc.

BIDRIN

(See Miticides)

CHLORDANE

(See Preemergence Herbicides)

COPPER ARSENATE, BASIC

The J. J. Dill Co.
The Sherwin-Williams Co.

CRYOLITE

Aceto Chemical Co., Inc.
Pennsalt Chemicals Corp.

CYGON (DIMETHOATE)

Aceto Chemical Co., Inc.
American Cyanamid Co.
The J. J. Dill Co.
W. R. Grace & Co.
Great Lakes Chemical Div.
Hub States Chemical & Equip. Corp.
B. G. Pratt Co.
Southern Mill Creek Products Co., Inc.
Thompson-Hayward Chemical Co.

DDD (TDE)

Allied Chemical Corp.
W. R. Grace & Co.
Niagara Chemical Div., FMC Corp.
Rohm and Haas Co.
Southern Mill Creek Products Co., Inc.

DDT

Allied Chemical Corp.
Bonide Chemical Co., Inc.
Chevron Chemical Co., Ortho Div.
Chipman Div., Rhodia Inc.
Diamond Shamrock Chemical Co.
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DELNAV

(See Miticides)

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DIBROM

(See Miticides)

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ETHION

(See Miticides)

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GUTHION

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(See Preemergence Herbicides)

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(See Miticides)

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(See Miticides)

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(See Aquatic Herbicides)

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(See Aquatic Herbicides)

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BMB Co., Inc.
Brillion Iron Works, Inc.
E. L. Caldwell & Sons, Inc.
Deere & Co.
International Harvester Co.
Hoffco, Inc.
Homelite Div., Textron, Inc.
Kromer Co.
Locke Manufacturing Cos., Inc.
McCulloch Corp.
Pitman Mfg. Co.
Rowco Mfg. Co., Inc.
Side-Winder Plant, FMC Corp.
Stihl American, Inc.
The Vandermolen Co.

BRUSH HOOKS

Asplundh Tree Expert Co.
Bartlett Mfg. Co.
Harder Arborist Supply Co.
Pitman Mfg. Co.

CABLE SUPPLIES

Bartlett Mfg. Co.
H. K. Porter, Inc.
Practical Products Corp.

CHEMICAL APPLICATOR, DRIP

Lakes Supply Co., Inc.

CHEMICAL APPLICATORS, GRANULAR

Asplundh Tree Expert Co.
John Bean Div., FMC Corp.
John Blue Co.
Borden Chem., Smith-Douglass Div.
Buffalo Turbine Ag. Equip. Co.
Contree Sales, Inc.
Dempster Industries, Inc.
The J. J. Dill Co.
Gandy Co.
Hub States Chemical & Equip. Corp.
Thor Power Tool Co.
International Harvester Co.
Jacobsen Mfg. Co.
Kromer Co.
Larson Machine, Inc.
Lakes Supply Co., Inc.
Lely Corp.
Solo Motors, Inc.
Southern Mill Creek Products Co., Inc.
Tarrant Mfg. Co.
Tryco Mfg. Co., Inc.
Walsh Manufacturing Co.
Waymark

CHEMICAL APPLICATORS, LIQUID

Ag-King (Div. of TAGS)
Amchem Products, Inc.
Asplundh Tree Expert Co.
Avco Ezee Flow Div.
John Bacon Corp.
John Bean Div., FMC Corp.
John Blue Co.
Bowie Machine Works, Inc.
The Broyhill Co.
Buffalo Turbine Ag. Equip. Co.
Century Engineering Corp.
Clark Mfg. Co.
Contree Sales, Inc.
Deere & Co.
DEFCO
The J. J. Dill Co.
Dempster Industries, Inc.
Red Ewald, Inc.
Farmrite Sprayer, Inc.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hanson Equipment Co.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
International Harvester Co.
Jacobsen Mfg. Co.
Lakes Supply Co., Inc.
Larson Machine, Inc.
Melnor Industries, Inc.
F. E. Myers & Bro. Co.
Rear's Mfg. Co.
Root-Lowell Corp.
Silver Creek Precision Corp.
Solo Motors, Inc.
Southern Mill Creek Products Co., Inc.
Superior Chemical Products, Inc.

Tarrant Mfg. Co.
Thompson-Hayward Chemical Co.
Tryco Mfg. Co., Inc.
Universal Metal Products Div.
The Vandermolen Co.
Walsh Manufacturing Co.
Waymark

CHESTS, TOOL

HEMCO Corporation
Knaack Mfg. Co.

CHIPPERS

Asplundh Chipper Co.
E. W. Bliss Co.
Fitchburg Engineering Corp.
H & G Tool Co.
M-B Company
Mitts & Merrill, Inc
Morbark Industries, Inc.
Papec Machine Co.
Piqua Engineering, Inc.
Safety Test & Equipment Co., Inc.
Trailevator Div., Magline, Inc.
Wayne Manufacturing Co.

CLIMBERS' SPURS

Asplundh Tree Expert Co.
Bartlett Mfg. Co.
W. M. Bashlin Co.

COMBS, TURF

Parker Sweeper Co.
Rental Equipment Mfg. Co.
Ryan Equipment Mfg. Co.

CRANES

Arlo Industries, Inc.
Baker Equipment Engineering Co.
J. I. Case Co.
Deere & Co.
Dico Side-O-Matic
Halline Utility Equipment Co.
Hiab Hydraulics, Inc.
Ideal Crane Div.
International Harvester Co.
National Crane Corp.
Pitman Mfg. Co.
Servis Equip. Co.
Weldex

DISKS, CULTIVATING

Allis-Chalmers Mfg. Co.
J. I. Case Co.
Deere & Co.
Engineering Products Co.
Ford Motor Co., Tractor Div.
Gravely Corp.
International Harvester Co.
Massey-Ferguson, Inc.
Wheel-Horse Products, Inc.

DRILLS (Field)

J. I. Case Co.
Deere & Co.
Gandy Co.
International Harvester Co.
Massey-Ferguson, Inc.

DRILLS (Hand & Power Tool)

Bartlett Mfg. Co.
Black & Decker Mfg. Co.
Fairmont Hydraulics
Halline Utility Equip. Co.
Hoffco, Inc.
Skil Corp.
Stihl American, Inc.

DUSTERS

John Bean Div., FMC Corp.
John Blue Co., Inc.
Buffalo Turbine Ag. Equip. Co.
Champion Sprayer Co.
R. E. Chapin Mfg. Works, Inc.
DeVilbiss Co.
The J. J. Dill Co.
Great Lakes Chemical Div.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
The Ben Meadows Co.
Root-Lowell Corp.
Solo Motors, Inc.
Southern Mill Creek Products Co., Inc.
Superior Chemical Products, Inc.
Universal Metal Products Div.
The Vandermolen Co.

FIRST-AID KITS

American Optical Co.
Mine Safety Appliances Co.
Pulmosan Safety Equipment Corp.
Scott Aviation Corp.
Welsh Mfg. Co.

FLAMETHROWERS (SPRAYERS)

John Bean Div., FMC Corp.
Blackwell Burner Co.
R. E. Chapin Mfg. Works, Inc.
Cranco Co.
Gotcher Engineering & Mfg. Co.
H. D. Hudson Mfg. Co.
Solo Motors, Inc.
Superior Chemical Products, Inc.
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Universal Metal Products Div.
The Vandermolen Co.

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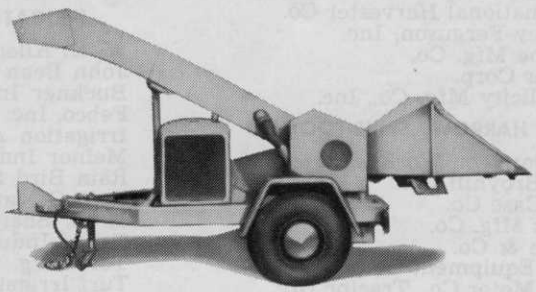

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Dempster Industries, Inc.
The J. J. Dill Co.
Red Ewald, Inc.
Great Lakes Chemical Div.
Silver Creek Precision Corp.
Southern Mill Creek Products Co., Inc.
West Chemical Products Inc.

FUMIGANT COVERS (Plastic Sheets)

Great Lakes Chemical Div.

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John Bacon Corp.
International Harvester Co.
New World Products Co., Inc.

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Engineering Products Co.
Ford Motor Co., Tractor Div.
Simplicity Mfg. Co., Inc.
Viking Mfg. Co.
Wheel-Horse Products, Inc.

HARROW, SPRING-TOOTHED

Allis-Chalmers Mfg. Co.
Brillion Iron Works, Inc.
The Broyhill Co.
J. I. Case Co.
Clark Mfg. Co.
Deere & Co.
Engineering Products Co.
Ford Motor Co., Tractor Div.
Gravely Corp.
International Harvester Co.
Massey-Ferguson, Inc.
Melroe Mfg. Co.
Oliver Corp.
Simplicity Mfg. Co., Inc.

HARROW, SPIKE-TOOTHED

Brillion Iron Works, Inc.
The Broyhill Co.
J. I. Case Co.
Clark Mfg. Co.
Deere & Co.
Finn Equipment Co.
Ford Motor Co., Tractor Div.
John H. Graham & Co., Inc.
Gravely Corp.
International Harvester Co.
Oliver Corp.
Wheel-Horse Products, Inc.

HELMETS

American Optical Co.
Asplundh Tree Expert Co.
Glendale Optical Co., Inc.
Great Lakes Chemical Div.
Mine Safety Appliances Co.
Pulmosan Safety Equipment Corp.
Welsh Mfg. Co.
Willson Products Div.

HOSE

Ampulco (Hardie)
Asplundh Tree Expert Co.
John Bacon Corp.
The Broyhill Co.
Century Engineering Corp.
Contree Sales, Inc.
DeVilbiss Co.
The J. J. Dill Co.
Friend Manufacturing Corp.
Great Lakes Chemical Div.
Larson Machine, Inc.
Samuel Moore & Co.
F. E. Myers & Bro. Co.
Practical Products Corp.
Sprayco Mfgs., Inc.
Superior Chemical Products, Inc.

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Fairmont Hydraulics
New World Products, Inc.

HYDRAULIC DUMPING HOISTS

Collins Associates, Inc.

HYDRAULIC LIFTS

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Pitman Mfg. Co.
Trailevator Div., Magline, Inc.

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Finn Equipment Co.
Reinco, Inc.

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Certain-teed Products Corp.
Johns-Manville Corp.
Reynolds Metals Co.
Ridge Plastics Co.
Practical Products Corp.
R. M. Wade & Co.
Telsco Industries

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Ryan Equipment Co.

IRRIGATION RISER VALVES

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Williamstown Irrigation, Inc.

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Febco, Inc.
Irrigation Accessories, Inc.
Melnor Industries, Inc.
Rain Bird Sprinkler
Rain-O-Mat Sprinklers
H. B. Sherman Mfg. Co.
Telsco Industries
Toro Mfg. Corp.
Turf Irrigation Corp.
R. M. Wade & Co.
Williamstown Irrigation, Inc.

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John Bean Div., FMC Corp.
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ENRESCO, Inc.
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Lockwood Corp.
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Plains Supply Co.
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Telsco Industries
The Thompson Manufacturing Co.
Toro Manufacturing Corp.
Turf Irrigation Corp.
Vermeer Manufacturing Co.
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Williamstown Irrigation, Inc.

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LEAF BLOWERS

American-Lincoln Corp.
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International Harvester Co.
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Slope Tractor, Inc.
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York Modern Corp.

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Deere & Co.
Dico Side-O-Matic
Howard Rotavator Co., Inc.
Pitman Mfg. Co.
Waldon, Inc.

LOADER, SELF PROPELLED

Erickson Corp.

LOADERS, TRACTOR MOUNTED

Allis-Chalmers Mfg. Co.
Arps Corp.
J. I. Case Co.
Danuser Machine Works
Deere & Co.
Engineering Products Co.
Ford Motor Co., Tractor Div.
Gravely Corp.
International Harvester Co.
Koyker Mfg. Co.
Massey-Ferguson, Inc.
Melroe Mfg. Co.
Oliver Corp.
Rear's Mfg. Co.
The Sun-Mastr Corp.
Vermeer Manufacturing Co.

LOG SPLITTERS

Piqua Engineering, Inc.
Waco Lickity Log Splitter Div.

MASKS, DUST

Acme Protection Equipment Corp.
American Optical Co.
The J. J. Dill Co.
Great Lakes Chemical Div.
Hub States Chemical & Equip. Corp.
Martindale Electric Co.
Mine Safety Appliances Co.
Pulmosan Safety Equipment Corp.
Scott Aviation Corp.
The Vandermolen Co.
Welsh Mfg. Co.
Willson Products Div.

MASKS, GAS

Acme Protection Equipment Corp.

The J. J. Dill Co.
Great Lakes Chemical Div.
Hub States Chemical & Equip. Corp.
Mine Safety Appliances Co.
Pulmosan Safety Equipment Corp.
Scott Aviation Corp.
Willson Products Div.

MEASURING WHEEL

Ferguson Fumigants, Inc.
Gandy Co.
Great Lakes Chemical Div.
B. G. Reilly Co.
Rolatape, Inc.

MISCELLANEOUS

CLUTCHES

Mercury Clutch Div.

COMMUNICATION SYSTEMS

Motorola Comm. & Elect., Inc.

CONVEYORS, PORTABLE, BELT

Stone Conveyor Co., Inc.

DIFFERENTIALS

Tecumseh Products Co.

EDGING, LAWN

Ryerson Steel

FLOTATION TIRES & WHEELS

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Martin Tire & Supply, Inc.

GARDEN TOOLS

Village Blacksmith

GASOLINE ENGINE

Rudd Manufacturing, Inc.

GEARED ANGLE DRIVES

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HYPO-HATCHET INJECTOR

The Ansul Co.

INJECTORS, CHEMICAL, FERTILIZER

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The Whitaker Manufacturing Co.

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The Whitaker Manufacturing Co.

SOLIDS SEPARATOR

A. V. Electronics, Inc.

STORAGE TENDER UNIT

Rudd Manufacturing Co.

TRANSAXLES

Tecumseh Products Co.

TRANSMISSIONS

MinnTurf Equipment Designs Corp.
Tecumseh Products Co.
Turf Racks

MISTBLOWERS, BACKPACK

Asplundh Tree Expert Co.
Buffalo Turbine Ag. Equip. Co.
Burton Supply Co., Inc.
The J. J. Dill Co.
Great Lakes Chemical Div.
Hanson Equipment Co.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
Silver Creek Precision Corp.
Solo Motors, Inc.
Southern Mill Creek Products Co., Inc.
Superior Chemical Products, Inc.
Tradewinds, Inc.
The Vandermolen Co.

MISTBLOWERS, ELECTRIC

Root-Lowell Corp.

MISTBLOWERS, SELF-PROPELLED

Solo Motors, Inc.

MISTBLOWERS, TRUCK-MOUNTED

Ag King (Div. of TAGS)
Ampulco (Hardie)
Aquanautics, Inc.
John Bean Div., FMC Corp.
Besler, A Div. of C-C Industries
The Broyhill Co.
Buffalo Turbine Ag. Equip. Co.
The J. J. Dill Co.
Finn Equipment Co.
F. E. Myers & Bro. Co.
Silver Creek Precision Corp.
Solo Motors, Inc.
Southern Mill Creek Products Co., Inc.
Superior Chemical Products, Inc.
The Vandermolen Co.

MISTBLOWERS, NOZZLE PARTS

Ag King (Div. of TAGS)
John Bean Div., FMC Corp.
The Broyhill Co.
Buffalo Turbine Equipment Co.
Century Engineering Corp.
Delevan Mfg. Co.
The J. J. Dill Co.
Great Lakes Chemical Div.
H. D. Hudson Mfg. Co.
F. E. Myers & Bro. Co.
Solo Motors, Inc.
Southern Mill Creek Products Co., Inc.

MOTORS

Allegretti & Co.
L. M. Cox Mfg. Co.
International Harvester Co.
Onan Div., Studebaker Corp.
Practical Products Corp.
Sprayco Mfgs., Inc.
Superior Chemical Products, Inc.
Tecumseh Products Co.
The Vandemolen Co.
Waukesha Motor Co.

MOWERS, BLADES & CUTTING PARTS

The Whitaker Manufacturing Co.

MOWERS, FLAIL

John Bean Div., FMC Corp.
BMB Co., Inc.
Brillion Iron Works, Inc.
E. L. Caldwell & Sons, Inc.
J. I. Case Co.
Deere & Co.
Engler Mfg. Co.
Excel Industries, Inc.
Ford Motor Co., Tractor Div.
Gravely Corp.
Henderson Mfg. Co.
Hoffco, Inc.
International Harvester Co.
Lakes Supply Co., Inc.
Massey-Ferguson, Inc.
Mott Corp.
Ryan Equipment Co.
Side-Winder Plant, FMC Corp.
Slope Tractor, Inc.
The Sun-Mastr Corp.

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National Mower Co.
Roseman Mower Corp.
Roxy-Bonner, Inc.
Simplicity Mfg. Co., Inc.
Southern Mill Creek Products Co., Inc.
The Sun-Mastr Corp.
Toro Manufacturing Corp.

MOWERS, REEL

Bolens Div., FMC Corp.
J. I. Case Co.
Devere-Locke Div., Locke Mfg. Co.
Engineering Products Co.
Ford Motor Co., Tractor Div.
Gravely Corp.
International Harvester Co.
Jacobsen Mfg. Co.
Jari Corp.
Kin-Co
Lakes Supply Co., Inc.
Locke Mfg. Co., Inc.
MTD Products, Inc.
National Mower Co.
Roseman Mower Corp.
Roxy-Bonner, Inc.
Simplicity Mfg. Co., Inc.
Southern Mill Creek Products Co., Inc.
The Sun-Mastr Corp.
Toro Mfg. Corp.
Wheel-Horse Products, Inc.

MOWERS, ROTARY

Allis-Chalmers Mfg. Co.
Ariens Co.
Avco Ezee Flow Div.
Bachtold Bros.
John Bean Division, FMC Corp.
The Black & Decker Mfg. Co.
John Blue Co.
BMB Co.
Bolens Div., FMC Corp.
Brillion Iron Works, Inc.
Bunton Co.
E. L. Caldwell & Sons, Inc.
J. I. Case Co.
Deere & Co.
Engler Mfg. Co.
Engineering Products Co.
Excel Industries, Inc.
Ford Motor Co., Tractor Div.
Gale Products
Goodall Mfg. Corp.
Gravely Corp.
Heckendorn Mfg. Co., Inc.
Homelite Div., Textron, Inc.
International Harvester Co.
Jacobsen Mfg. Co.
Jari Corp.
Kromer Co.
Lakes Supply Co., Inc.
Locke Mfg. Co., Inc.
Massey-Ferguson, Inc.
MTD Products, Inc.
Oliver Corp.
J. R. Pendleton & Son Inc.
Pennington Mfg. Co.
Quick Manufacturing, Inc.
Rear's Mfg. Co.
Servis Equip. Co.
Side-Winder Plant, FMC Corp.
Simplicity Mfg. Co., Inc.
Slope Tractor, Inc.
Speedex Tractor Co.
Solo Motors, Inc.
Southern Mill Creek Products Co., Inc.
The Sun-Mastr Corp.
Thor Power Tool Co.
Toro Manufacturing Corp.
Triumph Machinery Co.
Wheel-Horse Products, Inc.
Yazoo Mfg. Co., Inc.

MOWERS, SICKLE BAR

Allis-Chalmers Mfg. Co.
Gravely Tractors
International Harvester Co.
Jacobsen Mfg. Co.
Jari Corp.
Massey-Ferguson, Inc.
Simplicity Mfg. Co., Inc.

MOWERS, VERTICAL (De-Thatchers)

Allis-Chalmers Mfg. Co.
BMB Co., Inc.
Deere & Co.
Engler Mfg. Co.
Henderson Mfg. Co.
International Harvester Co.
Jacobsen Mfg. Co.
Rental Equipment Mfg. Co.
Rogers Mfg. Co., Inc.
Ryan Equipment Co.
Southern Mill Creek Products Co., Inc.
Sweepster, Inc.
Triumph Machinery Co.
West Point Products Corp.

MULCH BLOWERS

Finn Equipment Co.
Reinco

PASTEURIZERS, SOIL

Tarrant Mfg. Co.

PROPORTIONING SYSTEMS

Contree Sales, Inc.
Vineland Laboratories, Inc.

PROTECTIVE CLOTHING

American Optical Co.
Charleston Rubber Co.
Mine Safety Appliances Co.

PRUNERS

Ackley Mfg. Co.
Asplundh Tree Expert Co.
John Bacon Corp.
Bartlett Mfg. Co.
W. M. Bashlin Co.
Fairmont Hydraulics
Fanno Saw Works
Friend Mfg. Co.
John H. Graham & Co., Inc.
Halline Utility Equipment Co.
Harder Arborist Supply Co.
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Hunt-Pierce Corp.
Limb-Lopper Co., Inc.
Miller Robinson Co.
Melnor Industries, Inc.
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Pitman Mfg. Co.
H. K. Porter, Inc.
Rowco Mfg. Co., Inc.
Seymour Smith & Son, Inc.
Stihl American, Inc.

PUMPS

Ace Pump Corp.
Ampulco (Hardie)
Aurora Pump Div.
John Bacon Corp.
John Bean Div., FMC Corp.
John Blue Co.
Bowie Industries, Inc.
The Broyhill Co.
Century Engineering Corp.
Contree Sales, Inc.
DEFCO
Delavan Manufacturing Co.
DeVilbiss Co.
Dempster Industries, Inc.
The J. J. Dill Co.
Farmrite Sprayer, Inc.
Farris Chemical Co.
Friend Manufacturing Corp.
Gotcher Engineering & Mfg. Co.
Hanson Equipment Co.
Homelite Div., Textron, Inc.
H. D. Hudson Mfg. Co.
Hydraulic Products Co., Inc.
Hypro, Inc.
Larson Machine, Inc.
Lely Corp.
Marlow Pumps Div.
Midland Prod. Co.
Minnesota Wanner Co.
F. E. Myers & Bro. Co.
Oberdorfer Pump Div.
Practical Products Corp.
Simplex Mfg. Co.
Solo Motors, Inc.
Sprayco Mfgs. Co.
Thor Power Tool Co.
Tryco Mfg. Co., Inc.
Universal Motor Co.
Viking Pump Co.
Williamstown Irrigation Inc.

RAKES

Arps Corp.
Asplundh Tree Expert Co.
Bartlett Mfg. Co.
Brillion Iron Works, Inc.
Deere & Co.
Henderson Mfg. Co.
Ford Motor Co., Tractor Div.
International Harvester Co.
Jari Corp.
F. D. Kees Mfg. Co.
Lely Corp.
Rental Equipment Mfg. Co.
Roseman Mower Corp.
Servis Equip. Co.
Triumph Machinery Co.
York Modern Corp.

REELS, HOSE

Clifford B. Hannay & Son, Inc.
Melnor Industries, Inc.

RESPIRATORS

Acme Protection Equipment Corp.
American Optical Co.
John Bacon Corp.
The J. J. Dill Co.
Friend Mfg. Co.
Glendale Optical Co., Inc.
Great Lakes Chemical Div.
Hub States Chemical & Equip. Corp.
Martindale Electric Co.
Mine Safety Appliances Co.
Pulmosan Safety Equipment Corp.
Scott Aviation Corp.
Superior Chemical Products, Inc.
The Vandermolen Co.
Welsh Mfg. Co.
West Chemical Products, Inc.
Willson Products Div.

ROLLER-SPRAYERS

Red Ewald, Inc.
Friend Mfg. Co.
Lakes Supply Co., Inc.
Rear's Mfg. Co.
Sprayco Mfgs. Co.

ROLLERS, TURF

Big J Products, Inc.
Brillion Iron Works, Inc.
Daymon Mfg. Corp.
Ford Motor Co., Tractor Div.
John H. Graham & Co., Inc.
Gravely Corp.
International Harvester Co.
Princeton Turf Farms
Rogers Mfg. Co., Inc.
Rosco Manufacturing Co.
Ryan Equipment Co.
Simplicity Mfg. Co., Inc.
Sun Industry, Inc.
Wheel-Horse Products, Inc.

ROOT-FEEDING RODS

John Bean Div., FMC Corp.
Ross Daniels, Inc.
The J. J. Dill Co.

Dobbins Div., Chamberlain Mfg. Corp.
Hub States Chemical & Equip. Corp.
Hydroponic Chemical Co., Inc.
Minnesota Wanner Co.
Universal Metal Products Div.

SAFETY BELTS AND SADDLES, TREE CLIMBERS

Asplundh Tree Expert Co.
Bartlett Mfg. Co.
W. M. Bashlin Co.
Mine Safety Appliances Co.
Safety Test & Equipment Co., Inc.

SAFETY EQUIPMENT

Acme Protection Equipment Corp.
American Optical Co.
Asplundh Tree Expert Co.
Bartlett Mfg. Co.
W. M. Bashlin Co.
John Bean Div., FMC Corp.
Charleston Rubber Co.
Glendale Optical Co.
Great Lakes Chemical Div.
Harder Arborist Supply Co.
Mine Safety Appliances Co.
Pulmosan Safety Equipment Corp.
Safety Test & Equipment Co., Inc.
Scott Aviation Corp.
Southern Mill Creek Products Co., Inc.
The Vandermolen Co.
Welsh Mfg. Co.
Willson Products Div.

SAWS, CHAIN

Homelite Div., Textron Inc.
New World Products Co., Inc.
Limb-Lopper Co., Inc.
Pioneer Saws Div., Gale Products

SAWS, MANUAL

Bartlett Mfg. Co.
John Bacon Corp.
W. M. Bashlin Co.
The Fanno Saw Works
John H. Graham & Co., Inc.
Harder Arborist Supply Co.
Safety Test & Equipment Co., Inc.
Seymour Smith & Son, Inc.
Wright Saw Div.

SAWS, POWER

Ackley Mfg. Co.
American-Lincoln Corp.
Asplundh Tree Expert Co.
John Bacon Corp.
The Black & Decker Mfg. Co.
L. M. Cox Mfg. Co., Inc.
DESA Industries, Inc.
Engineering Products Co.
Fairmont Hydraulics
Fanno Saw Works
Friend Mfg. Co.
Gravely Corp.
Great Lakes Chemical Div.
Halline Utility Equipment Co.
Hoffco, Inc.
Homelite Div., Textron, Inc.
Hunt-Pierce Corp.
Limb-Lopper Co., Inc.
McCulloch Corp.
Miller-Robinson Co.
New World Products Co., Inc.
Pioneer Saws Div., Gale Products
Pitman Mfg. Co.
Remington Arms Co., Inc.
Rowco Mfg. Co., Inc.
Solo Motors, Inc.
Stihl American, Inc.
The Sun-Mastr Corp.
Thor Power Tool Co.
Wright Saw Div.

SAWS, CHAIN, PARTS

Foley Mfg. Co.
Omark Industries, Inc.
Pioneer Saws Div., Gale Products
Sabre Saw Chain, Inc.

SCRAPERS

BMB Company
Deere & Co.
Gravely Corp.
International Harvester Co.

SCREENERS, SOIL

Lindig Manufacturing, Inc.

SCYTHES

Hoffco, Inc.

SEEDERS, BELT TYPE

John Bean Div., FMC Corp.

SEEDERS, DISK TYPE

J. I. Case Co.
International Harvester Co.
Rogers Mfg. Co., Inc.
Vandermolen Export Co.

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Avco Ezee Flow Div.
Brettrager Manufacturing
Brillion Iron Works, Inc.
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SEEDERS, HYDRAULIC

Reinco Inc.

SEEDERS, SOD

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SHARPENER, CHAIN SAW

American-Lincoln Div.

SHEARS

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Bartlett Mfg. Co.
Friend Mfg. Co.
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Melnor Industries, Inc.
H. K. Porter, Inc.
Seymour Smith & Son, Inc.

SHREDDERS, SOIL

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Lindig Manufacturing, Inc.
Royer Foundry & Machine Co.
W-W Grinder Corp.

SICKLE BAR MOWER

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Deere & Co.
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Gravely Corp.
International Harvester Co.
Kromer Co.
Simplicity Mfg. Co., Inc.
Slope Tractor, Inc.
Solo Motors, Inc.
Wheel-Horse Products, Inc.

SOD CUTTERS

Beck Mfg. Co.
Bowie Industries Inc.
Finland Turf Cut Div.
Jacobsen Mfg. Co.
James-Way Equipment Co.
Princeton Turf Farms
Ryan Equipment Co.
Sodmaster
Southern Mill Creek Products Co., Inc.

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John Nunes Mechanical Harvesting Co.
Shamrock Turf Nurseries
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West Point Products Corp.

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Ryan Equipment Co.

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Kel Instruments Co., Inc.
LaMotte Chemical Products Co.
Sudbury Laboratory

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Rogers Mfg. Co., Inc.
Ryan Equipment Co.
Southern Mill Creek Products Co., Inc.
West Point Products Corp.

SPRAY BOOMS

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Clark Mfg. Co.
Contree Sales, Inc.
Custom Spray Equipment Corp.
DEFCO
Dempster Industries, Inc.
The J. J. Dill Co.
Red Ewald, Inc.
Farmrite Sprayer, Inc.
Friend Manufacturing Corp.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hanson Equipment Co.
H. D. Hudson Mfg. Co.
Kromer Co.
Larson Machine, Inc.
Mallinckrodt Chemical Works
Master Sprayers, Inc.
F. E. Myers & Bro. Co.
Oakes Mfg. Co., FMC Corp.
Papec Machine Co.
Practical Products Corp.
Rear's Mfg. Co.
Root-Lowell Corp.
Simplex Mfg. Co.
Sprayco Mfgs., Inc.
Southern Mill Creek Products Co., Inc.
Thuron Sprayer Mfg. Co.
Tote Systems Div.
Tryco Mfg. Co., Inc.
Walsh Manufacturing Co.

SPRAY GUNS

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John Bean Div., FMC Corp.
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Century Engineering Corp.
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Contree Sales, Inc.
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DeVilbiss Co.
The J. J. Dill Co.
Farmrite Sprayer, Inc.
Friend Manufacturing Corp.
Gotcher Engineering & Mfg. Co.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hanson Equipment Co.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
Hydroponic Chemical Co., Inc.
Kromer Co.
Larson Machine, Inc.
Master Sprayers, Inc.
Melnor Industries, Inc.
F. E. Myers & Bro. Co.
Oakes Mfg. Co., FMC Corp.
Practical Products Corp.
Rear's Mfg. Co.
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SPRAY NOZZLES, COMPLETE

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Century Engineering Corp.
Clark Mfg. Co.
Contree Sales, Inc.
Delavan Manufacturing Co.
DeVilbiss Co.
The J. J. Dill Co.
Farmrite Sprayer, Inc.
Friend Manufacturing Corp.
Gotcher Engineering & Mfg. Co.
Gravely Corp.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Growers Chemical Corp.
Hanson Equipment Co.
H. D. Hudson Mfg. Co.
Kromer Co.
Larson Machine, Inc.
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Melnor Industries
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Oakes Mfg. Co., FMC Corp.
Papec Machine Co.
Practical Products Corp.
Rear's Mfg. Co.
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Simplex Mfg. Co.
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Spraying Systems Co.
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Superior Chemical Products, Inc.
Wm. Steinen Mfg. Co.
The Thompson Manufacturing Co.
Thuron Sprayer Mfg. Co.
Tryco Mfg. Co., Inc.
Walsh Manufacturing Co.

SPRAY NOZZLES, DISKS

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Amchem Products, Inc.
John Bacon Corp.
John Bean Div., FMC Corp.
The Broyhill Co.
Century Engineering Corp.
Clark Mfg. Co.
Delavan Manufacturing Co.
The J. J. Dill Co.
Farmrite Sprayer, Inc.
Friend Manufacturing Corp.
Gotcher Engineering & Mfg. Co.
Gravely Corp.
Green Lawn Laboratories, Inc.
Hanson Equipment Co.
Larson Machine, Inc.
Master Sprayers, Inc.
F. E. Myers & Bro. Co.
Oakes Mfg. Co., FMC Corp.
Practical Products Corp.
Simplex Mfg. Co.
Sprayco Mfgs., Inc.
Spraying Systems Co.
Southern Mill Creek Products Co., Inc.
Wm. Steinen Mfg. Co.
Thuron Sprayer Mfg. Co.
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SPRAY NOZZLES, WHIRLS

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The Broyhill Co.
Century Engineering Corp.

Clark Mfg. Co.
Delavan Mfg. Co.
The J. J. Dill Co.
Farmrite Sprayer, Inc.
Friend Manufacturing Corp.
Gravely Corp.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Larson Machine, Inc.
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F. E. Myers & Bro. Co.
Oakes Mfg. Co., FMC Corp.
Practical Products Corp.
Spraying Systems Co.
Southern Mill Creek Products Co., Inc.
Wm. Steinen Mfg. Co.
Superior Chemical Products, Inc.
Walsh Manufacturing Co.

SPRAY PUMPS

Hypro, Inc.
Master Sprayers, Inc.

SPRAY RIG LINE MARKERS

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Clark Mfg. Co.
Contree Sales, Inc.
Dempster Industries, Inc.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
H. D. Hudson Mfg. Co.
Larson Machine, Inc.
Rear's Mfg. Co.

SPRAYER, BIFLUID

John Bean Div., FMC Corp.
The Broyhill Co.
Buffalo Turbine Equipment Co.
Clark Mfg. Co.
Dobbins Div., Chamberlain Mfg. Corp.
Red Ewald, Inc.
Farmrite Sprayer, Inc.
Finn Equipment Co.
Great Lakes Chemical Div.
Minnesota Wanner Co.
Simplex Mfg. Co.
Sprayco Mfgs., Inc.
Stull Chemical Co.

SPRAYERS, BOOM

Ag-King (Div. of TAGS)
Ampulco (Hardie)
Amchem Products, Inc.
John Bacon Corp.
John Bean Div., FMC Corp.
John Blue Co., Inc.
The Broyhill Co.
Century Engineering Corp.
Clark Mfg. Co.
Contree Sales
Cushman Motors
Deere & Co.
DEFCO
Dempster Industries, Inc.
The J. J. Dill Co.
Dobbins Div., Chamberlain Mfg. Corp.
Red Ewald, Inc.
Farmrite Sprayer, Inc.
Friend Manufacturing Corp.
Gotcher Engineering & Mfg. Co.
Gravely Corp.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Growers Chemical Corp.
Hanson Equipment Co.
Heckendorn Mfg. Co., Inc.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
International Harvester Co.
Kromer Co.
Larson Machine, Inc.
Master Sprayers, Inc.
Mayrath Co.
F. E. Myers & Bro. Co.
Papec Machine Co.
Rear's Mfg. Co.
Rogers Mfg. Co., Inc.
Root-Lowell Corp.
Simplex Mfg. Co.
Southern Mill Creek Products Co., Inc.
Sprayco Mfgs., Inc.
Sun Industry, Inc.
Thuron Sprayer Mfg. Co.
Tryco Mfg. Co., Inc.
Walsh Manufacturing Co.
Waymark

SPRAYERS, CART OR WHEELBARROW TYPE

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John Bean Div., FMC Corp.
The Broyhill Co.
Buffalo Turbine Ind. Equipment Co.
Champion Sprayer Co.
R. E. Chapin Mfg. Works, Inc.
Clark Mfg. Co.
Deere & Co.
The J. J. Dill Co.
Dobbins Div.
Red Ewald, Inc.
Farmrite Sprayer, Inc.
Friend Mfg. Co.
Great Lakes Chemical Div.
Hanson Equipment Co.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
Larson Machine, Inc.
F. E. Myers & Bro. Co.
Rear's Mfg. Co.
Root-Lowell Corp.
D. B. Smith & Co.
Southern Mill Creek Products Co., Inc.
Sun Industry, Inc.
Tarrant Mfg. Co.
Thuron Sprayer Mfg. Co.
Universal Metal Products Div.

SPRAYERS, COMPLETE POWER UNIT

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Ampulco (Hardie)
John Bacon Corp.
John Bean Div., FMC Corp.
Besler, Div. of C-C Industries
John Blue Co., Inc.
R. H. Bogle Co.
Bowie Industries, Inc.
The Broyhill Co.
Buffalo Turbine Ag. Equip. Co.
Century Engineering Corp.
Champion Sprayer Co.
R. E. Chapin Mfg. Works, Inc.
Clark Mfg. Co.
Cushman Motors
DEFCO
Deere & Co.
The J. J. Dill Co.
Dobbins Div.
Red Ewald, Inc.
Farmrite Sprayer, Inc.
Friend Manufacturing Corp.
Gravely Corp.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hanson Equipment Co.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
Kromer Co.
Larson Machine, Inc.
Lockwood Corp.
Marlow Pumps Div.
Master Sprayers, Inc.
Minnesota Wanner Co.
F. E. Myers & Bro. Co.
Oakes Mfg. Co., FMC Corp.
Practical Products Corp.
Rear's Mfg. Co.
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Tryco Mfg. Co., Inc.
Universal Metal Products Div.
The Vandermolen Co.
Walsh Mfg. Co.
Waymark
West Chemical Products, Inc.

SPRAYERS, COMPRESSED AIR

John Bean Div., FMC Corp.
Blackwell Burner Co.
R. E. Chapin Mfg. Works, Inc.
DeVilbiss Co.
The J. J. Dill Co.
The C. B. Dolge Co.
Red Ewald, Inc.
Great Lakes Chemical Div.
H. D. Hudson Mfg. Co.
Larson Machine, Inc.
Oakes Mfg. Co., FMC Corp.
Root-Lowell Corp.
D. B. Smith & Co.
Southern Mill Creek Products Co., Inc.
Superior Chemical Products, Inc.
Tryco Mfg. Co., Inc.
Universal Metal Products Div.
West Chemical Products, Inc.

SPRAYERS, HAND

Ag King (Div. of TAGS)
Ampulco (Hardie)
Bartlett Mfg. Co.
John Bean Div., FMC Corp.
Blackwell Burner Co.
Borden Chem., Smith-Douglass Div.
Broyhill Co.
Buffalo Turbine Ag. Equip. Co.
Century Engineering
Champion Sprayer Co.
R. E. Chapin Mfg. Works, Inc.
Contree Sales, Inc.
The J. J. Dill Co.
Deere & Co.
The C. B. Dolge Co.
Friend Mfg. Co.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
Hydroponic Chemical Co., Inc.
Larson Machine, Inc.
Melnor Industries, Inc.
Oakes Mfg. Co., FMC Corp.
Root-Lowell Corp.
Silver Creek Precision Corp.
D. B. Smith & Co.
Solo Motors, Inc.
Southern Mill Creek Products Co., Inc.
Superior Chemical Products, Inc.
The Thompson Manufacturing Co.
Tradewinds, Inc.
Tryco Mfg. Co., Inc.
Universal Metal Products Div.
The Vandemolen Co.
Walsh Manufacturing Co.
West Chemical Products, Inc.

SPRAYERS, HOSE END

W. D. Allen Mfg. Co.
Ampulco (Hardie)
John Bacon Corp.
Barco Mfg. Co., Inc.
John Bean Div., FMC Corp.
Borden Chem., Smith-Douglass Div.
Broyhill Co.
Century Engineering Corp.
R. E. Chapin Mfg. Works, Inc.
The J. J. Dill Co.
Friend Mfg. Co.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hayes Spray Gun Co.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
Hydroponic Chemical Co., Inc.
Larson Machine, Inc.
Master Sprayers, Inc.
Melnor Industries, Inc.
H. B. Sherman Mfg. Co.
Southern Mill Creek Products Co., Inc.
Superior Chemical Products, Inc.
Thuron Sprayer Mfg. Co.
Tryco Mfg. Co., Inc.
Universal Metal Products Div.
Walsh Mfg. Co.

SPRAYERS, KNAPSACK

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John Bean Div., FMC Corp.
Buffalo Turbine Ag. Equip. Co.
Champion Sprayer Co.
R. E. Chapin Mfg. Works, Inc.
The J. J. Dill Co.
C. B. Dolge Co.
Friend Mfg. Co.
Great Lakes Chemical Div.
Green Lawn Laboratories, Inc.
Hanson Equipment Co.
Hub States Chemical & Equip. Corp.
H. D. Hudson Mfg. Co.
Ben Meadows Co.
Oakes Mfg. Co., FMC Corp.
Parco Products Co.
Root-Lowell Corp.
D. B. Smith & Co.
Solo Motors, Inc.
Southern Mill Creek Products Co., Inc.
Superior Chemical Products, Inc.
Tradewinds, Inc.
Universal Metal Products Div.
The Vanderomlen Co.

SPRAYERS, MOBILE TURF

Mallinckrodt Chemical Works

SPREADERS, DISC-TYPE

Amchem Products, Inc.
Borden Chem., Smith-Douglass Div.
Great Lakes Chemical Div.
Larson Machine, Inc.
Northrup, King & Co.
Southern Mill Creek Products Co., Inc.
Tarrant Mfg. Co.
Tyler Corp.
The Vandermolen Co.
Waymark

SPREADERS, HOPPER-TYPE

Avco Ezee Flow Div.
Borden Chem., Smith-Douglass Div.
Brettrager Manufacturing
Champion Sprayer Co.
The Cyclone Seeder Co., Inc.
Deere & Co.
Dempster Industries, Inc.
The J. J. Dill Co.
Fence Painter Corp.
Gandy Co.
Garber Seeders, Inc.
Gotcher Engineering & Mfg. Co.
Gravely Corp.
Great Lakes Chemical Div.
Highway Equipment Co.
International Harvester Co.
F. D. Kees Mfg. Co.
Larson Machine, Inc.
Lely Corp.
Schneider Metal Mfg. Co.
O. M. Scott & Sons
Simplex Mfg. Co.
Southern Mill Creek Products Co., Inc.
Sunnyhill Research & Mfg. Co.
Tarrant Mfg. Co.
Tryco Mfg. Co., Inc.
Tyler Corp.
The Vandermolen Co.

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James-Way Equipment Co.
Thompson Equipment Co.
Wichita Equipment Co.

SPRINKLERS

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Toro Mfg. Corp.

STONE PICKER

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McCabe-Powers Body Co.
Bridgeport Implement Works, Inc.
Lockwood Corp.
Rogers Mfg. Co., Inc.

STUMP CUTTERS

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Brooks Prducts Div.
H & G Tool Co.
International Harvester Co.
Valmont Industries, Inc.
Vermeer Manufacturing Co.
Wayne Mfg. Co.

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Deere & Co.
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Jacobsen Mfg. Co.
Kromer Co.
M-B Company
Melroe Mfg. Co.
Parker Sweeper Co.
Rogers Mfg. Co., Inc.
Turf Vac Corp.
Wayne Manufacturing Co.

TANKS, SPRAY

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John Bean Div., FMC Corp.
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The Broyhill Co.
Century Engineering Corp.
Clark Mfg. Co.
Contree Sales
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Red Ewald, Inc.
Farmrite Sprayer, Inc.
Friend Manufacturing Corp.
Gotcher Engineering & Mfg. Co.
Green Lawn Laboratories, Inc.
Hanson Equipment Co.
H. D. Hudson Mfg. Co.
Kromer Co.
Larson Machine, Inc.
F. E. Myers & Bro. Co.
Papec Machine Co.
Practical Products Corp.
Raven Ind. Inc.
Rear's Mfg. Co.
Simplex Mfg. Co.
Southern Mill Creek Products Co., Inc.
Sprayco Mfgs., Inc.
Superior Chemical Products, Inc.
Thuron Sprayer Mfg. Co.
Tryco Mfg. Co., Inc.
Universal Metal Products Div.
Walsh Manufacturing Co.

TILLERS

Allis-Chalmers Mfg. Co.
Ariens Co.
John Bean Div., FMC Corp.
Bolens Div., FMC Corp.
J. I. Case Co.
Contree Sales, Inc.
Deere & Co.
Engineering Products Co.
Ford Motor Co., Tractor Div.
Gravely Corp.

Howard Rotavator Co., Inc.
International Harvester Co., Inc.
Jacobsen Mfg. Co.
Lakes Supply Co., Inc.
Lely Corp.
MTD Products, Inc.
Quick Manufacturing, Inc.
Oliver Corp.
Rogers Mfg. Co., Inc.
Roseman Mower Corp.
Side-Winder Plant, FMC Corp.
Simplicity Mfg. Co., Inc.
Solo Industries, Inc.
Wheel-Horse Products, Inc.
Yazoo Mfg. Co., Inc.
York Modern Corp.

TIRES, FLOTATION

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Ryan Equipment Co.
Sodmaster
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Caterpillar Tractor Co.
Deere & Co.
Devere-Locke Div., Locke Mfg. Co.
Erickson Corp.
Engineering Products Co.
Ford Motor Co., Tractor Div.
Gravely Corp.
Homelite Div., Textron, Inc.
International Harvester Co.
Jacobsen Mfg. Co.
Locke Mfg. Cos., Inc.
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Meadow Bros. Nursery Supplies
Melroe Mfg. Co.
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Slope Tractor, Inc.
Speedex Tractor Co.
Toro Manufacturing Corp.
Tradewinds, Inc.
Waldon, Inc.
Wheel-Horse Products, Inc.

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Stone Fabricators, Inc.
Trailevator Div., Magline, Inc.

TREE INJECTORS

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Tree-Ject Co.

TREE MOVERS

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Davey Tree Expert Co.
Ideal Crane Div.
International Harvester Co.
Vermeer Manufacturing Co.

TREE SLINGS

Beseler Equip. Co.

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John Bacon Corp.
Bartlett Mfg. Co.

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Olmsteel Products, Inc.
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Bunton Co.
L. M. Cox Mfg. Co., Inc.
Gale Products
Gandy Company
John H. Graham & Co., Inc.
Jacobsen Mfg. Co.
K-D Mfg. Co.
Melnor Industries, Inc.
Rowco Mfg. Co., Inc.
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Sodmaster
Thor Power Tool Co.
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Aquatic Controls Corp.
The Vandermolen Co.

UNDERWATER WEED RAKE

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Aquatic Controls Corp.

UTILITY TRAILERS

Beck Mfg. Co.

UTILITY VEHICLES

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Bombardier, Ltd.
Cushman Motors
Deere & Co.
Gravely Tractors
W. J. Heinrich Products
International Harvester Co.
Jacobsen Mfg. Co.
Otis Materials Handling
Rogers Mfg. Co., Inc.
Sweepster, Inc.
Tryco Mfg. Co., Inc.
Walker Mfg. Co.
West Point Products Corp.

VACUUMS

Allis-Chalmers Mfg. Co.
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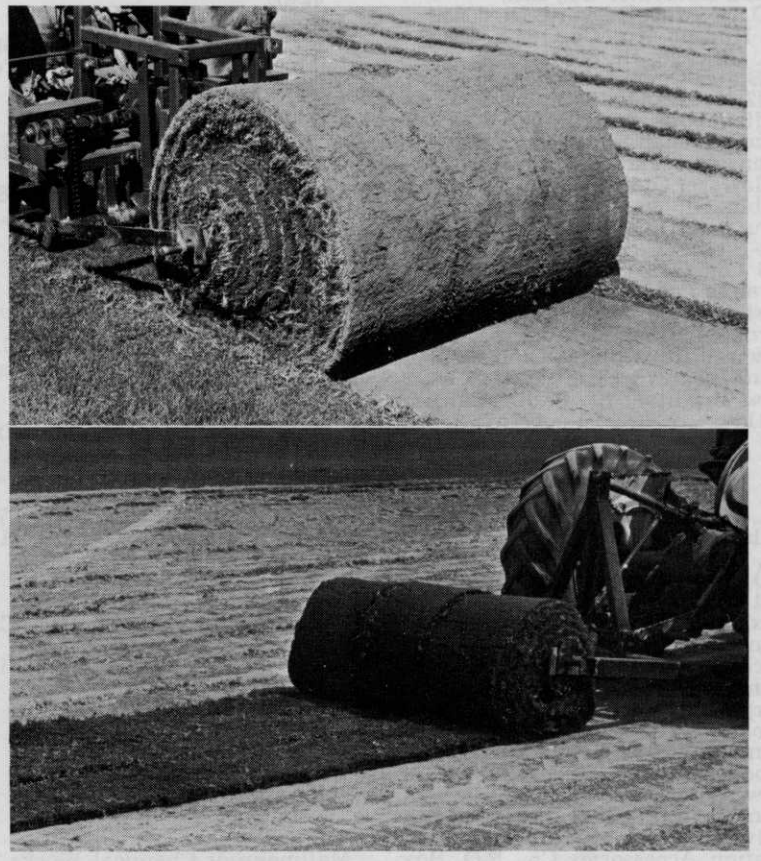

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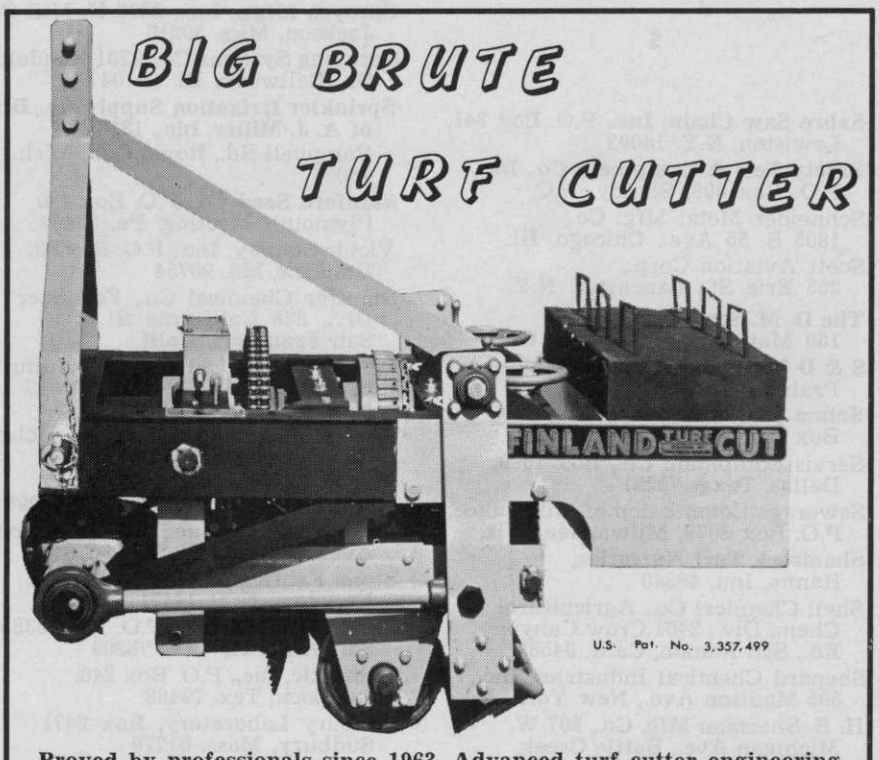

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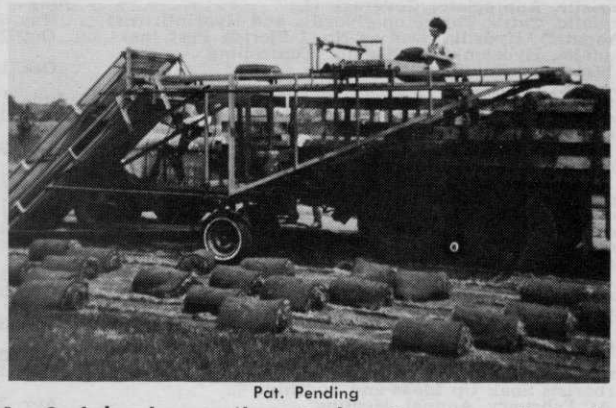

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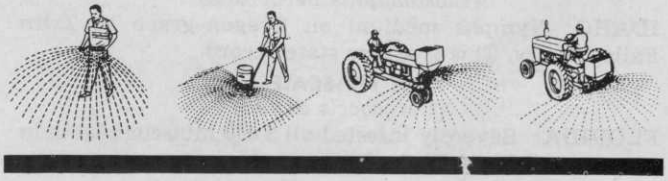

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insect report

TURF INSECTS

FALL ARMYWORM

(Spodoptera frugiperda)

ALABAMA: Larval infestations reoccuring in scattered lawns and sports fields in Chilton and Henery counties.

A MARCH FLY

(Dilophus orbatus)

CALIFORNIA: Counts of 250 per square yard on dichondra lawns at Rialto, San Bernardino County; at Berkeley, Alamed County; and at Richmond; Contra Costa County. Many homeowners concerned about mass populations of flies entering premises. Unusually abundant this fall.

INSECTS OF ORNAMENTALS

A PYRALID MOTH

(Hyblaea puera)

FLORIDA: Larvae infested all 300 plants of black calabash (Crescentia spp.) in nursery at Lauderdale Lakes, Broward County. This is a new host record.

AN APHID

(Liosomaphis berberidis)

IDAHO: Nymphs medium on Oregon-grape at Twin Falls County. This is a new state record.

A PIT SCALE

(Cerococcis deklei)

FLORIDA: Severely infested all 3,090 hibiscus plants in nursery at Miami, Dade County.

TREE INSECTS

DOUGLAS-FIR TUSSOCK MOTH

(Hemerocampa pseudotsugata)

CALIFORNIA: Extensive survey in El Dorado National Forest Oct. 5-9. Infestation light in about 30,000 acres of fir on Baltic Ridge, Plummer Ridge, Alder Ridge, and Iron Mountain, between U.S. Highway 50 and State Highway 88; mostly on Forest Service Lands. Heavy in spots on white fir on Plummer and Baltic Ridges, and Iron Mountain. No virus disease in pupae.

SMALLER EUROPEAN ELM BARK BEETLE

(Scolytus multistriatus)

MISSISSIPPI: Moderate on Chinese, American, and winged elms in Hinds County.

LYONETIID MOTHS

(Bucculatrix spp.)

MISSISSIPPI: Moderate to heavy on Nuttal oak in Sharkey County. MASSACHUSETTS: *B. ainsliella* (oak skeletonizer) larvae and pupae still causing many complaints statewide.

BLACK TURPENTINE BEETLE

(Dendroctonus terebrans)

MISSISSIPPI: Much damage in areas affected by Hurricane Camille, especially in coastal suburbs where heavy equipment removed debris. LOUISIANA: Heavy in large pole-sized loblolly pine in Catahoula District. SOUTH CAROLINA: Heavy infestation on 96,000-acre Sandhills State Forest.

VARIABLE OAK LEAF CATERPILLAR

(Heterocampa Manteo)

ARKANSAS: Larvae, mainly this species, secondarily *H. guttivitta* (saddled prominent), and other species, defoliated 2.5 million acres of hardwood. About 1.5 million acres had moderate to heavy defoliation. Oaks most heavily defoliated.

STEVEN D. ROGERS succeeds **CLARKE H. STAPLES** as turf equipment specialist for Jacobsen Manufacturing Co. Staples was promoted recently to assistant general manager of Jacobsen's Division at Olathe, Kan.

* * *

TUCO, Division of The Upjohn Co., has reorganized its agricultural chemical marketing. William C. Haskett has been named marketing manager; Rocco Lipari, product manager; O. B. (Buzz) Lewis, national sales manager.

In a separate announcement, James H. Smith has been named TUCO agricultural chemicals salesman for metropolitan New York, Maine, New Hampshire, Connecticut, Vermont, Rhode Island and Massachusetts.

* * *

VELSICOL CHEMICAL CORPORATION has announced three management changes. Thomas C. Zinninger is the new general manager of agricultural activities. He is responsible for the commercial development and marketing of chemicals in the domestic agricultural, pest control, and home, lawn and garden markets. Neil R. Mitchell has been promoted to secretary and general counsel. Alex Saucedo moves up to manager of pesticide products for the northeast region.

* * *

ENVIRONMENTAL INDUSTRIES, INC., Encino, Calif., has announced three new management positions. Robert Scofield is general manager of the EII division, Environmental Care, Inc. Robert L. Curtis is president of Valley Crest Landscape, Inc., a wholly owned subsidiary. Paul E. Soll heads up a new corporate development department.

* * *

RICHARD P. FRENCER is the new technical sales representative for agricultural products and services in Union Carbide Corporation's western region.

* * *

R. E. "ED" BROWN of Goochland Nurseries, Pembroke, Fla. is the elected president of the Horticultural Research Institute.

* * *

INTERNATIONAL CESSNA 170 ASSOCIATION has elected this leadership for the coming year: President—William Wehner of Davenport, Ia.; secretary-treasurer—Berwyn Henderson, Canton, Ill.; vice-president — John Collins, Richardson, Tex.; historian—Ryan B. Seals, Richardson, Tex.; directors — John Benham, Russ Noble, Tommy Pratt, and Cleo Bickford.

* * *

ROHM AND HAAS COMPANY, Philadelphia, announces changes in its agricultural and sanitary chemicals department. J. E. Thompson becomes manager of the Texas sales district, including Lousiana, Oklahoma and New Mexico. R. L. Cheves moves from assistant to product manager of agricultural pesticides. J. S. Harmon becomes assistant product manager for agricultural fungicides, miticides, and ammonium sulfate. E. H. Boeckel becomes assistant product manager for agricultural herbicides, insecticides and emulsifiers.

* * *

WILLIAM F. (BILL) SHEAR has been appointed manager of the Los Angeles zone for the Allis-Chalmers Industries Tractor and Equipment Division.

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Norman Sachnik, president of Mano Co., Houston, demonstrated his Foamicide equipment. Foam is produced by using Foamwet surfactant and a specially designed foam generator. The generator consists of a nozzle assembly that includes air intake holes. Spray velocity pulls in air through the holes and mixes it with the solution to create the foam. Advantages, Sachnik said, are that less water is required; improved coverage is obtained; longer contact on the leaf surface is achieved and consequently giving better herbicide efficiency; and drift hazard is reduced.

Texas Weed Conference

FACTORS AFFECTING WEED CONTROL

MAN IS ACTING under a "God-given right" to seek better ways to do things, yet people in the pesticide field are often apologetic and assume a defensive attitude, Dr. Roland Laning of Dow Chemical Company told the fifth Texas Industrial Weed Control Conference.

A part of man's right to improve his position in the world, Dr. Laning asserted, is environmental management, a duty and responsibility "that is a good thing . . . and we should be proud of it."

Many of the current critics have never experienced the hardships of earlier generations, continued Laning, manager of Dow's herbicide field research and development. They do not catch the significance, for example, of the grower who advertises that his apples are "safe to eat in the dark."

In industrial weed control, some uppermost objectives are safety and convenience, he said. Yet the dilemma can be characterized by people who don't want electric outages and also don't want the kind of "scar" across the land necessary for transmission lines.

Dr. Laning expressed solid support for continuing research to monitor the effects of pesticides, but "I would argue strongly with the interpretations" of some recent findings.

To be consistent with the public reaction and subsequent governmental restrictions on 2,4,5-T, he said, there is basis for action against Vitamin A. Given in a dosage 100 times greater than the prescribed rate, Vitamin A has been known to cause mammals to give birth to deformed offspring, he said.

One pound of salt used improperly can kill five men, he added. One pound of salt on an acre of land won't harm any animal life. Neither will 2,4,5-T, he said.

Laning's address set the scene for the first full day of the increasingly popular and somewhat unique three-day event on the campus of Texas A & M University. A record 150 professionals attended, coming not just from Texas but from the entire Southwest. The conference is heavy on discussion of practical problems and perhaps is the only one of its kind devoted solely to industrial weed control. Programming is conceived by a steering committee of

Rotary mowers made by E. L. Caldwell & Sons at Corpus Christi and Servis Equipment at Dallas proved their worth in tall grass, weeds and dryland willow. Both had three rotary sections and cut a 15-ft. swath.

Fred McClure of Applied Research and Development Co. of Addicks, Tex., demonstrated the versatility and ruggedness of his company's four-wheel drive, articulating tractor. The "Outlaw," as this model is called, has been adapted as a right-of-way spray rig. It also can be used for mowers, and navigates deep water and swampy areas where other vehicles would become mired.

men actively engaged in industrial weed control. Dr. Wayne McCully of A & M's Range Science department is chairman.

The conference recognizes all levels of experience, beginning with a session on "herbicides for beginners" and this year with a fellow-up session on factors affecting herbicides. Program participants come from all aspects of the industry. Manufacturers report on and demonstrate new and improved lines of equipment the final day.

Dr. C. J. Scifres of A & M outlined the critical points that determine the effect a herbicide has on a plant. If the herbicide is applied to the foliage, there must be good interception and retention. The surfactant, short for surface acting agent, is the additive that lowers surface tension and spreads out the droplet.

In later discussion, a member of the audience pointed out that the surfactant can increase the rate of chemical flow through the equipment.

There must be good entry of the herbicide into the stem or leaf of the plant Dr. Scifres continued, followed by vascular transport, cell-to-cell transport to the site of action where some vital function is disrupted. Herbicides applied to the soil must move to the root zone and enter the roots. From then on, the route to plant destruction is the same.

Dr. Scifres defined the residual classes of soil sterilants this way: no residual toxicity—a herbicide that breaks down in 48 hours or less; temporary—2 days to 4 months; semi-permanent—4 months to 2 years; permanent—more than 2 years.

Factors that affect the action of herbicides applied to the soil include: temperature, sunlight, rainfall, and soil properties, such as texture, organic matter and microbial population.

It is possible to apply too much chemical and thereby defeat the method in which the herbicide achieves plant kill, said another audience member. Applying too much of a systemic-acting herbicide, he said, is like burning off the pump before the pump has a chance to work.

In a later session, Henry O'Neal, A & M Extension engineer, cited other factors that affect herbicide action. "A good herbicide depends on good application," he said. "Too much can hurt both the pocketbook and method of action."

He listed these trouble spots to watch for in equipment: water—use water that looks clean enough to drink; strainer—it may be too small; pump—keep close watch on the pressure regulator; pressure gauge—use one that has adequate tick-marks to give you the accuracy you need; run your engine at the proper rpm; mixing—devise an easy but extremely accurate method of measuring pounds and gallons; and booms—make them stout.

Problems of a different nature that affect the benefits of herbicides were discussed by L. Pat Collins, superintendent of airfield and grounds for Houston Intercontinental Airport. Concerning 2,4-D and 2,4,5-T, Collins aid, "We know we're safe. Our city says we can't use them. If I could use 2,4-D and 2,4,5-T, our problems would be over."

Collins supervises a crew of 45 men that will increase to 75 in the near future. On the 619 acres of vegetation out of the 7,300-acre airfield, Collins faces about every weed, tree and turf problem possible. Mowing ranges from right-of-way to golf course quality. He has aquatic weeds along 18 miles of drainage ditches, a tank farm to maintain, and boulevards to be edged. When an outbreak of the pine bark beetle occurred, it took 60 days to get a request through the governmental process—too much for the pesticide to still be effective.

As in previous years, the problems between customer and contractor were discussed. Should a customer decide on the basis of bid, or stick with a good contractor? Should a customer hire two contractors, then award volume accord-

This panel discussed contracting for maintenance. From the left are Charles Middleton of Asplundh Tree Expert Co., Jenkintown, Pa.; Louis Hansen of Texas Power and Light Co., Dallas; and Hunter Jones, Leon County Tractor Co., Buffalo, Tex.

ing to performance? Should the contract always be let to the lowest bidder? There was no consensus.

Too often, said one contractor, the customer thinks quality and hires economy. But the economy performer may cause costly follow-up.

There was no consensus on solutions, either. Some felt that the customer should write tighter specifications, others believed specifications should be general, allowing the contractor to complete the job in a way he has found most efficient with the manpower and equipment he has. There was agreement that more monitoring of work done was necessary on the part of both contractor and customer.

Depending on the type of contract written, one participant suggested that it might be less costly for the customer to touch up a job than to get the contractor to come back.

Who pays for down time? The contract should specify the responsibility if down time could be a problem. One way suggested to reduce down time from flat tires was to use multi-ply airplane-type tires, puncture-proof, or solid rubber tires.

Hunter Jones of Buffalo, Tex., described how he is making a profitable business out of contract mowing. He is able to mow for less than the state, he said, because his labor costs are lower, and more maintenance doubles equipment life.

Problems, he said, have included: having to spend too much time checking to see if work is being done to specification; getting the job completed on time, which otherwise causes budget difficulties; and inconsistent bids, which can result in not enough money to do the job.

Chemical maintenance is improving with new techniques, equipment and materials. Invert emulsions and foam additives permit better targeting of materials, increased effectiveness of herbicide, and decreased need for water.

Do you have to worry about drift when you're using foam or invert emulsions? Answered Dr. C. L. Leinweber, head of A & M's Range Science Department: "Even a cannonball will drift."

Chuck Middleton of Asplundh Tree Expert Company reported on a promising technique using growth regulators. Siberian elms planted under power lines have not been trimmed for the past six years, he said. Instead, they are treated with a foliar spray each spring after the tree has leafed out.

Frank Lawson of Kershaw Manufacturing Co., Montgomery, Ala., gave a film report on the new Kershaw brush cutter, which, he said, has cleared nine spans of utility right-of-way in three hours over rugged country.

Dick Fields of Velsicol reported that federal registration had been granted on a 5% granular formulation of Banvel.

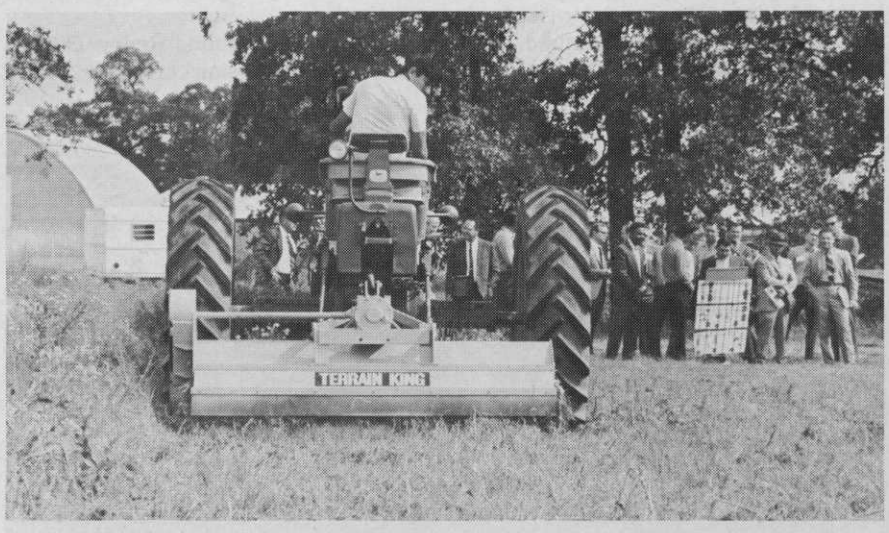
R. L. Robinson of Texas Electric Service was named to succeed Tom Mobley, Mobley Company, Inc., Kilgore, Tex., as chairman of the steering committee. New committee members are David Peterson, president of KDM Company, San Antonio, and Tom Dickerson, Dallas Parks Department.

HAA Claims Immunity To New Airport User Tax

The Board of Directors of the Helicopter Association of America has filed a helicopter industry brief with the Federal Aviation Administration, charging illegality of the Airport and Airways Revenue Act of 1970 as it may be interpreted and applied to the civil helicopter industry.

The law is a "User Tax" to be imposed upon the "users" of the airports and airways — meaning electronic navigation system with a lawful floor at 1,000-ft. altitudes on "airways" and lower only within airport terminal areas. The tax is to support present maintenance and provide for the future expansion for all "users" of the system. The civil helicopter operating industry, is not a "user" of the airports or the "airways," the HAA board contends, as covered in the terms of the Act. The Act was designed specifically for fixed-wing aircraft whose present and future demands upon the system require more extensive and expensive real estate at airports and more sophistication in the electronic airway navigation system. HAA takes the position that the rotary-wing helicopter industry is not a part of the loose term "General Aviation."

"Our requirements, equipment, operations and problems are entirely different and apart from any other phase of aviation relating to fixed-wing aircraft, large or small, reciprocating or turbine-powered, military or commercial," the Board stated.



Engler Manufacturing Company of Houston introduced and demonstrated its new flail mower. The unit comes in lift and pull 72-inch and 90-inch cutting widths. The 72-inch model has 52 cutting elements; the 90-inch, 66 cutting elements. Engler also demonstrated its slope mower.

Florida Nurserymen Tipped On Tree-Growth Retardants

Two tree-growth retardants have been used in Miami for the past four years and are now pronounced effective, Richard Hoeller, Florida Power and Light Co., told members of the Florida Nurserymen and Growers Association at its annual October trade show in Daytona Beach. The show drew just under 1,000 visitors.

Hoeller "inherited" the responsibility of keeping electric lines free of tree tops in 1958; a job he figured was a breeze until his subsequent encounters with irrate home owners.

Therefore, as an expedient, he launched a tree conservation plan which would limit the removal of ornamental trees, but would allow substitutions of low-growing palms whenever possible.

In the meantime, he watched the progress of several universities seeking a safe tree growth retardant.

The two materials which have been in use in Dade County for the past four years are Tre-Hold (AM-CHEM products) and MH30T (U. S. Rubber Co.). Tre-Hold, he explained, is painted on tree limb stubs after trimming or topping. Its purpose is to limit and retard growth. MH30T is mixed with water and sprayed on the tree after it has been topped and has re-sprouted four to six inches.

Spraying the top one-third of the tree retards overall growth. After nine to ten months, the tree is again sprayed to discourage further growth until line clearance finally necessitates retopping; then the program is resumed.

Hoeller said the treated trees are more compact than those not sprayed. Growth is retarded at an estimated 4.1 ratio.

An aerial lift and a two-man crew manning a 300-gallon tank is continuously on the move in the program.

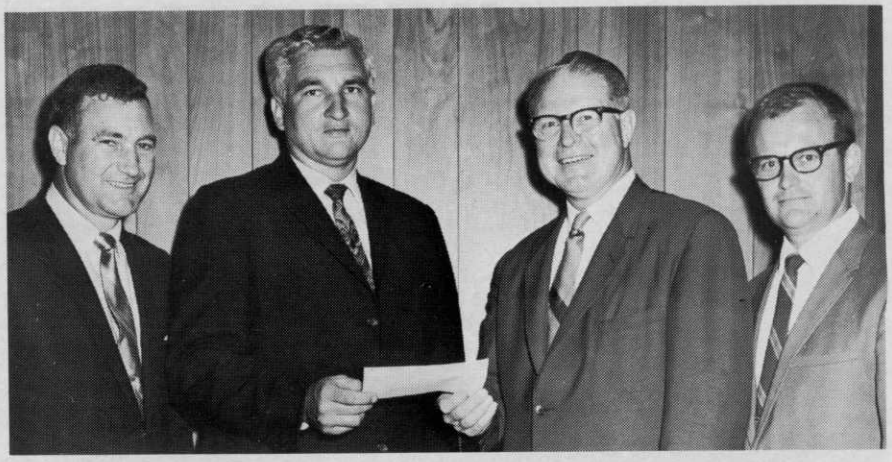
Dr. Carl E. Whitcomb, Department of Ornamental Horticulture, University of Florida, speaking on trees for street plantings, said that fast-growing trees generally have more insect and disease problems, plug drains with dropping leaves and generally increase maintenance cost two to five times over slow growing species.

Wood density of fast growers is less than slow growing species, making them more susceptible to wind and storm damage, he added.

Other undesirable characteristics of the fast growers include: short-lived, weak-branching angles, height too great for location, and persistent suckering and sprouting for several years after removal of the original tree.

Dr. Whitcomb listed some of the more preferred slow growing trees as: live oak, white oak, Japanese evergreen oak, black olive, dogwood and southern magnolia.

A proper establishment period during the first four to six years is particularly important, he said, and recommended: 1. Good soil conditions. 2. Adequate nutrients. 3. Adequate water, supplemented by irrigation whenever needed. 4. Full sunlight. 5. Moderate soil temperature. 6. Little disturbance of the root system. 7. Weed control to prevent competition for water and nutrients.



Ohio Turfgrass Foundation has awarded a $15,200 grant to Ohio State University for turfgrass research. The grant was announced at a recent OTF Board of Trustees meeting in Columbus. This is the third consecutive year the Foundation has donated $10,000 or more. OTF President Richard B. Craig (second from left), Robert W. Miller (left), executive secretary, and Gene Probasco (right), treasurer, present the $15,200 check to Austin E. Ritchie (second from right), assistant dean of OSU's College of Agriculture.

Conwed Corporation Offers Turf Protection Blankets

A new turf protection blanket against winterkill has been announced by Conwed Corporation, St. Paul, Minn.

The blanket is a lightweight, easily handled combination non-woven fiber cover. It is designed to be unrolled and secured (1,200 sq. ft. per each 6x200-ft. roll) over intensively cultured turfs, such as golf tees and greens, bowling greens and athletic fields.

The blanket is said to perform a number of functions. It prevents winter desiccation injury by trapping or retaining soil moisture and modifies extremely low temperatures that can cause direct grass kill. It also reduces washing of snow mold fungicides from turfgrass leaves and crowns, and allows sufficient light penetration and energy exchange for rapid and early spring green-up.

Technical data, prices and sample orders are available by circling (712) on the reply card.

A revolutionary new design eliminates damage to edge or surface of sidewalks, curbs — makes it easy to keep turf neatly edged along them. Guide tooth prevents blade damage. Adjustable nylon roller controls depth of cut.

The model 380 Turf Edger is a precision-built attachment that fits on the 5 ft. shaft of the portable gasoline-powered ROWCO BRUSHKING.

Also available is a grass trimmer attachment for fast, safe, easy trimming close up to posts, trees, foundations, etc.

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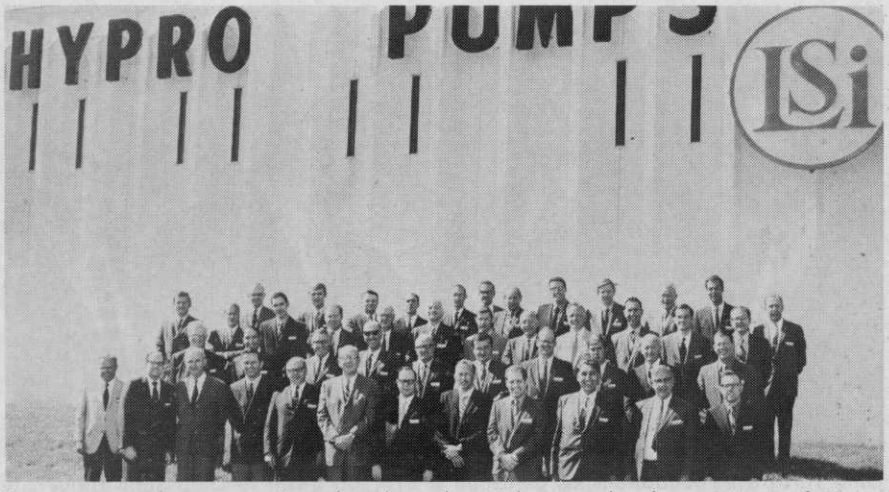

Five new products were introduced at the 18th annual sales seminar of Hypro Division of Lear Siegler, Inc., recently. The products were covered from conception to complete market analysis, including product application and distribution techniques and outlets. The seminar was conducted by Sales Vice-president Conrad Letourneau with help from Sales Manager DuWayne Olson, Market Consultant Carl Keiser and others. Andrew Haiduck, group vice-president from LSI, addressed the 30 factory representatives at the banquet.

New Turf Fungicide Ends Need for Mercury

A new fungicide designed to control a fungus that destroys turf during the winter is an effective substitute for mercury-based fungicides used for the same purpose, says a Michigan State University plant pathologist.

"Mercury and cadmium-based fungicides have been widely used on golf courses to control *Typhula* snow mold," says Dr. Joseph M. Vargas. "Legislation may soon be passed to ban the use of such potentially toxic metal compounds. Therefore it was essential to develop an equally effective fungicide without metallic ingredients."

Tesan SP, the commercial name of the new fungicide, will be on the market for the first time this season. Its chemical formula is 1,4-Dichloro-2,5 demethoxybenzene, or Chloroneb was developed through the work of Dr. Vargas and another MSU scientist, Dr. James B. Beard.

The gray snow mold the fungicide controls causes flat patches of dead grass often seen on golf courses in the spring. The gray threads of the fungus may be seen also.

Severity of damage inflicted by the fungus depends on how long the snow remains on the ground.

"When the turf is snow covered for four or five months, gray snow mold has a greater period of time to damage desirable grasses," says Dr. Vargas.

The MSU plant disease experts found the best time to apply Chloroneb was two weeks before the first permanent snow. It was also discovered that the new wettable powder fungicide performed best in nine-ounce concentrations. This amount was mixed with four gallons of water per thousand square feet, and was found to be just as effective as the mercury fungicides.

The granular form of Chloroneb had a longer residual effect, and performed better than the wettable powder. However, it is not available at this time. Another desirable feature revealed about the new fungicide is that it will not cause a yellowing of the grass, common with mercury fungicides because of their slight phytotoxicity.

Michigan Names Best Mixes For Roadside Grasses

The best way to establish grass along a roadside is to plant mixtures containing no less than 20% each of perennial ryegrass, Kentucky bluegrass and red fescue.

"In our study, we also found that adding cereal rye was beneficial to the mixture for sandy sites," John Kaufmann, Michigan State University turfgrass researcher, told scientists at the annual meeting of the American Society of Agronomy.

"But the addition of the cereal rye for clay-loam sites did more damage than good."

The ryegrass will help you get quick establishment on roadsides, however. Kaufmann explained that the cereal rye used in his study of roadside grass mixtures seemed to form a good surface climate for fescue on a sandy site by helping to hold moisture.

"After three growing seasons, the red fescue became the dominant grass on the sandy sites used in our tests.

"On the clay-loam sites, the Kentucky bluegrass became dominant after four seasons."

Kaufmann, who conducted his research in conjunction with MSU turfgrass specialist David Martin, said the addition of tall fescue, redtop, creeping bentgrass, orchardgrass or bromegrass had no effect on improving grass establishment in any of the roadside sites tested in southern Michigan.

Southern Illinois University, Carbondale, has cut leaf-raking time in half with a vacuum leaf collector that swoops up 14 square yards of leaves per load and grinds them to mulch. James Mayer, left, and Homer Pinkerton, physical plant workmen, operate the collector. The mulch, formerly burned, goes into a compost heap for campus use.

What's Best in Northwest Reported at Weed Meeting

WE DON'T KNOW as much about injury to humans as is desired for making policy decisions on pesticide use, a presidential representative told Washington state weed control experts during their annual meeting at Yakima, Nov. 4-6.

But a weed scientist suggested that the federal government was not improving a complicated situation when it used irrelevant data as a basis for granting or denying registrations.

Edward J. Burger, Jr., M.D., of the President's Office of Science and Technology, said, "We live with incomplete information . . . on the safety of pesticides." He told some 300 representatives of industry, government and the academic world at the Washington State Weed Conference that research into the possible hazards of pesticides will need to be on a continuing basis, and will need to be increased.

But Dr. Dean Swan, Washington State University agronomist and weed specialist, noted: "I would hope they would confine their recommendations to what is based on laboratory results that are relevant." The weed specialist charged that in some cases chemicals had been injected into laboratory test animals and results used as a basis for government recommendations. The results of oral and dermal contact with pesticides may well be investigated "but let's not use injections in laboratory tests because that doesn't occur in the commercial use of pesticides."

Weed control is considered in the original landscaping design by the Washington State Highway Department, reported horticulturist Richard D. Austin. Weed control during the construction period is done under contract by licensed applicators, then the state highway maintenance crews take over.

Visibility on the highway takes precedence over aesthetics. Shoulders are laid bare with sterilants—diuron, monuron and simazine—even if this causes browning of shrubbery farther back. After sterilization, shoulders may be covered with asphalt.

Though chemicals are most economical in many instances, there still is considerable use of other control. Hand weeding to avoid unsightly brownout is still relied on in the vicinity of Seattle (35 inches precipitation) where hard core unemployed and summer college students are hired. Hand weeding is still used also around the state's largest city in the eastern section, near the Idaho border, with perhaps half the annual precipitation of Seattle.

Casoron has been the most satisfactory material for controlling horsetail invasions of heath and heather.

Chemical control of all Scotch broom has not been economically feasible, so the state has been experimenting with planting douglas-fir and hemlock, which in 10-15 years may provide a sufficient canopy to shade out the broom.

Mowing is the basic control method in turf, said Austin, plus the use of fertilizer to encourage dense growth of the grass after initial use of chemical weed killers.

A large scale problem in Western Washington is the seedling trees starting between stands of native timber and the highway shoulder. These very soon cut down visibility from the highway, and the department is experimenting to see if grass or shrubbery will be more effective at discouraging the growth of the seedling trees.

Highlights on turfgrass weed control by Washington State University agronomist Roy L. Goss included:

Annual maintenance costs of the Washington state turfgrass industry are about $72 million.

1967 figures show that weed control cost golf courses $2.14/acre, schools $3.25/acre, and cemeteries $5.75/acre, while homeowners using weed control on 96,000 acres of turf spent about $13.10/acre.

Goss suggests that results may not have been good with homeowners, and says that most members of the general public do not know a few simple herbicides for a broad spectrum of weeds.

After reviewing current WSU recommendations for chemical control of broadleaf and grassy weeds in turf, Goss said:

"Phenoxy herbicides are only partially effective (for controlling creeping Veronica) and timing and weather conditions are critical. DCPA (Dacthal) has proved most effective in research tests, although its action is slower than what we would like. Search is continuing for even more effective materials."

On the use of arsenic to control *Poa annua,* he said "up to 18 lbs. of calcium arsenate per 1,000 sq. ft. applied the first year have been recommended in the Midwest, with additional follow-up annual applications to maintain toxic conditions. "This may be a good practice, so long as we don't raise the toxicity level so high that we inhibit all germination should we desire to overseed."

Pre-emergence herbicides such as Bensulide, DCPA and Benefin will definitely kill germinating seedlings of *Poa annua,* but the chemicals do not kill the mature plants. "Although surface toxicity may be present disturbance of the soil surface will permit germination and development of new plants . . . There velopment of new plants.

In general, it is good management that pays: "Good nutritional programs are good weed control programs. Research plots at Puyallup (in western Washington state) with optimal nutrition (6 lb. N, 2 lb. P_2O_5, and 4 lb. K_2O) are practically weed free after ten years of maintenance without weed control programs. Check plots, on the other hand, are almost solid weeds.

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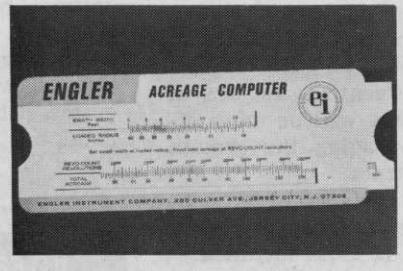
MINI BRUSH CHIPPER, Lindig Mfg. Co., St. Paul, Minn.

Lindig's Kajon Chopper is built on the basic concept of the big brush chippers. Its size and price give it a field of its own. Three models — two 4 hp and one 7 hp gas engines. Electric power available. 4 hp processes brush up to 2" diameter; 7 hp about doubles the size. Cuts to half-inch lengths. Price begins under $300. Ideal for landscape contractors, lawn and tree services, golf courses, cemeteries, park departments, rental agencies and homeowners when material to be processed doesn't warrant using big chippers. For more details, circle (701) on reply card.

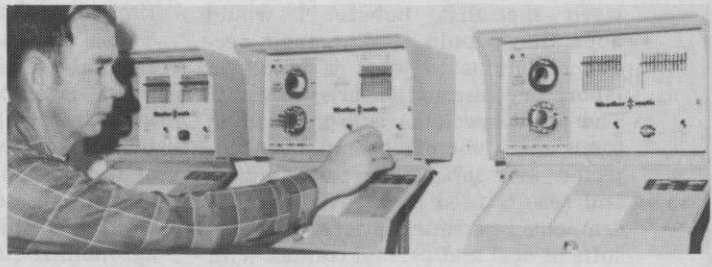
BRUSH CUTTER, Kershaw Mfg. Co., Montgomery, Ala.

This center-oscillating, all-terrain vehicle mounts twin rotors that cut a 7' swath. Brush and trees up to three or four inches in diameter are readily cut by flail-type blades. Each rotor is fully reversible. Hydrostatic drive. Length, 20'; width, 7'; height, 8'-3½"; weight, 14,350 lbs. GM diesel, Ford or Chrysler gasoline engines available. Fuel — 40-gal. capacity. Speed from .5 to 16 mph. Tires — 18.4-26 ten-ply steel reinforced. Winch — 18,000 lbs. capacity. Turning radius inside 14'4". For more details, circle (702) on the reply card.



ACREAGE COMPUTER, Engler Instrument Co., Jersey City, N.J.

A combination of the new Engler Revolution Counter plus the recently developed Slide-Rule Computer makes it easy to figure exact acreage. The Computer is easy to operate and permits the user to figure precisely, regardless of wheel sizes or swath widths, using just one standard Revo-Count. A Revo-Count also available to read acreage directly where wheel size and swath are known and constant. For details, circle (705) on the reply card.

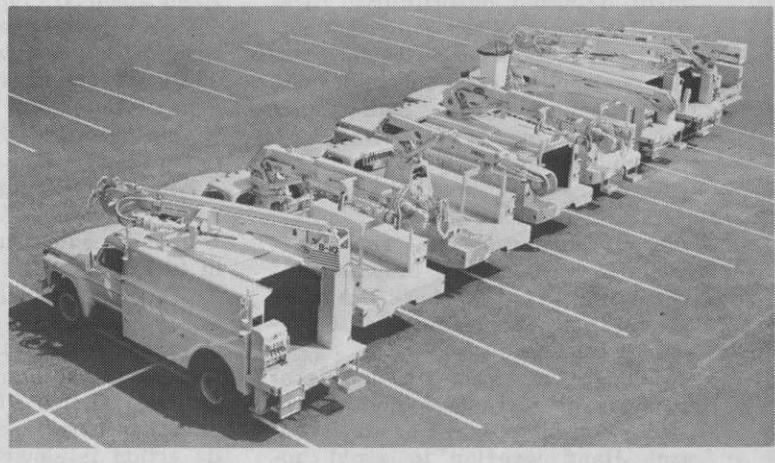


IRRIGATION CONTROL UNITS, Telsco Industries, Garland, Tex.

Underwriters Laboratory has approved a new SSV solid-state controller line made by Weather-matic Sprinkler Division. UL sanction now applies to all three series (others are MV and EM-7) of turf irrigation control units. Available in 11 and 23 stations. Provides 0 to 60 minute timing. SSV can be operated manually or semi-automatically without disturbing pre-set automatic program. For more details, circle (706) on the reply card.

FLEXIBLE IRRIGATION PIPE RISER, King Brothers Industries, Sepulveda, Calif.

Product can reduce breakage in plastic sprinkler systems by as much as 90%. "Flex-Riser" is installed below soil level where sprinkler riser meets the plastic pipe line. Excellent for high traffic areas where sprinklers are kicked or run over often. All shocks and jolts are absorbed by rubber cushion while plastic pipe line remains undisturbed. For more details, circle (708) on the reply card.



EQUIPMENT LEASING SERVICE, Baker Equipment Engineering Co., Richmond, Va.

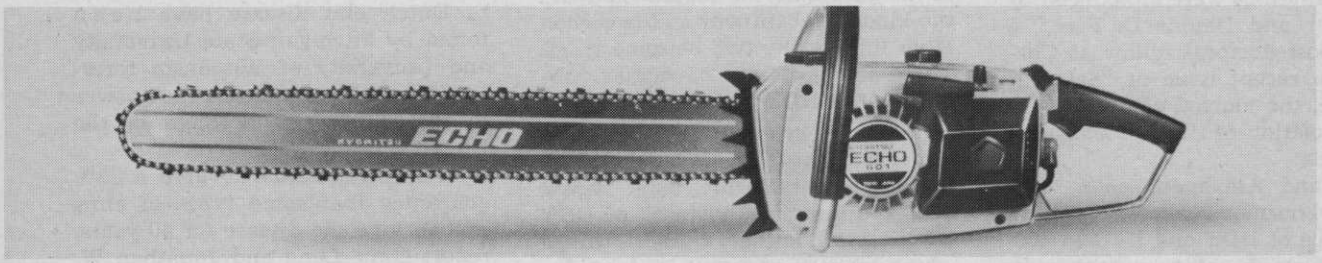
Pictured is a portion of the wide line of "instant equipment" available for lease on short-term and long-term basis. Baker leasing not limited to Baker products — equipment offered for lease or rental from many other leading manufacturers. Brochure available on complete line, and advantages of renting and/or leasing. For more details, circle (709) on the reply card.

LOG SPLITTER, Vermeer Mfg. Co., Pella, Ia.

A faster, safer and more economical method of splitting logs into firewood is attributed to the new LS-300. The 18 hp unit hydraulically splits any log up to 30 in. long. Cutting blade exerts 30,000 lbs. of splitting force, automatically returning to starting position. Entire cycle takes 24 seconds. Even amateur operator can work single control lever. Unit can be towed. For more details, circle (703) on the reply card.

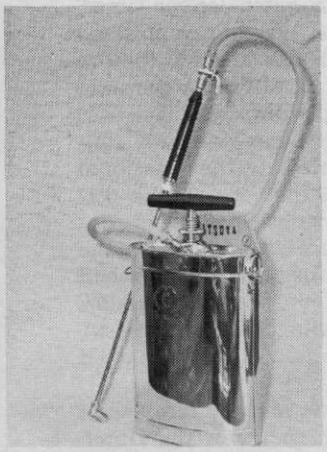
GANG REEL MOWER, Toro Mfg. Corp., Minneapolis, Minn.

Toro's new Parkmaster 9 is called the "world's largest flexible mower." Cuts a swath 18½ ft. wide. Mows 80 to 90 acres a day. Mower is a combination of well-balanced 79 hp turf tractor; a tractor-mounted, hydraulically operated 9-unit frame; and nine low-maintenance, six-bladed reel-type Spartan gang mowers. Transport speed is 40 mph. For more details, circle (704) on the reply card.



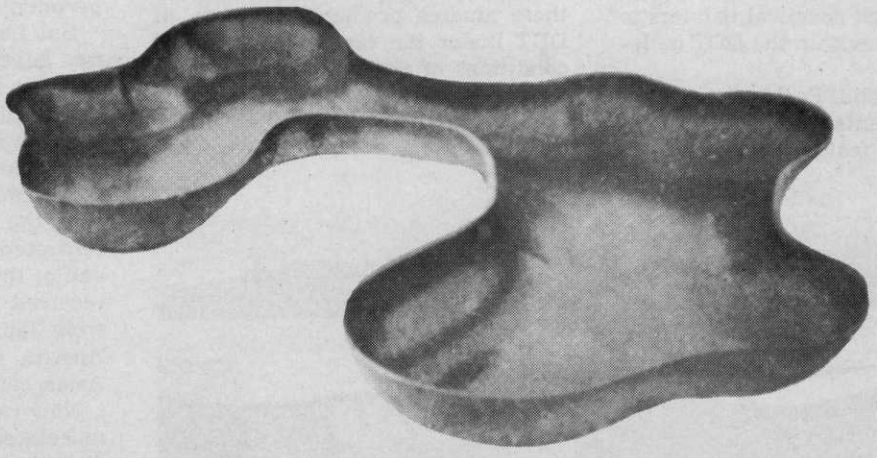
CHAIN SAW, Mitsui and Co., Atlanta, Ga.

Echo-601 is powered by a 3.65 cu. in. heat-resistant aluminum engine with hard chrome-plated cylinder and needle and ball bearing supported vital moving parts. Starting of engine is easier with decompression valve releasing engine compression. Recoil starter. Equipped with 20" bar and ⅜" pitch chain directly driven through a self-energizing centrifugal clutch. Bar and chain lubricated by dual oiling systems, manual and automatic. Controls arranged for one-hand operation. Weighs less than 14 pounds without bar and chain. Cuts 18" diameter soft wood log in 15 seconds. For more details, circle (707) on the reply card.



PRECISION SPRAYER, Roberts Company, Burlingame, Calif.

This sprayer delivers a fine, mist-like application of insecticides, fungicides, or foliar fertilizers to delicate or expensive plants. Built for professional use. 2-gal. brass, nickel and chromium-plated tank. For more details, circle (710) on the reply card.



GARDEN POOLS, Hermitage Gardens, West of Canastota, N.Y.

Pools are made of thick, lightweight fiberglass. Impervious to weather change. Come in artistically interesting irregular shapes to blend with any exterior landscape or garden. Pools can be set separately or combined into interconnecting systems. Six varieties of shapes, sizes and prices. Pool pictured is 114" long, 92" center length, 73½" wide at end, 8" deep. Comes in brown and blue. For free brochure, circle (711) on reply card.

Cornell Scientists Trace Decay of DDT

Cornell University scientists have used a series of unique laboratory experiments to establish a more complete biological model for tracing the pathway of DDT decomposition in nature. This study focuses on the ultimate fate of DDT in soil and water.

Identities of these decomposition products, and therefore their possible ecological hazards, are largely undefined, explained Prof. Martin Alexander of the N.Y. State College of Agriculture, Cornell. Research at Cornell has now revealed how, in biological models, this insecticide can be degraded. .

A major aspect of this research was the identification of the critical chemical factors responsible for the resistance of DDT to destruction by microorganisms.

These findings were announced by Alexander and Dennis D. Facht, a former post-doctoral fellow at Cornell, in a recent issue of "Science" magazine, the journal of the American Association of the Advancement of Science.

Focht and Alexander note: "Despite the enormous concern with the persistence of DDT and its degradation products in nature, surprisingly little is known about the products of biological decomposition in natural ecosystems, wherein microorganisms are likely to be the chief agents of biodegradation."

The Cornell studies not only described breakdown products of DDT but also defined chemical barriers to decomposition within the DDT molecule.

Alexander and Focht stated that their experimental observations suggest that two features contribute to making DDT and related chlorinated hydrocarbons able to resist areobic attack by bacteria.

They identified these two factors as the para-chlorine substitution and the kind of substituent on the carbon atom linking the two benzene rings. These chemicals are particular subunits of the DDT molecule.

In an interview Prof. Alexander remarked that it would be desirable to design a molecule that "would keep the pesticidal virtues" of DDT while eliminating those "things which make it resistant to degradation."

The finding of a short-lived chemical of the DDT class of insecticides would be aided by the identification of those factors that make DDT resistant to degradation.

The investigators emphasized that these studies predicted the fate of DDT under the carefully controlled conditions of the laboratory. Future experiments will show whether the same results can be obtained under field conditions.

Ward Swanson, superintendent of Plum Hollow Country Club, has been re-elected president of Michigan and Border Cities Golf Course Superintendents Association. The organization is made up of professional golf course maintenance men in the Detroit area. Other officers are from the left: Director — Robert Prieskorn of Western Golf and Country Club; new director — Al Kaltz of Maple Lane Golf Club; new director — Clem Wolfrom, superintendent of Detroit Golf Club; president — Ward Swanson; vice-president — Ted Woehrle, superintendent of Oakland Hills Country Club; new director — Dave Moote, superintendent of Essex Golf and Country Club, Windsor, Ontario; secretary-treasurer — Gerald Gill, Tam-O-Shanter Golf Club. Directors not pictured are Andrew Bertoni of Holly Greens Golf Course and William Madigan of Country Club of Jackson.

Elms Found Resistant To Dutch Elm Disease

European trees with a resistance to Dutch elm disease have been found by Michigan State University and University of Wisconsin foresters. These trees could be the answer to the Dutch elm problem in the United States.

It is now possible to give a 75% guarantee that some types of elms will survive the disease for 40 years, report Gary Long and Jonathan W. Wright, MSU forestry researchers.

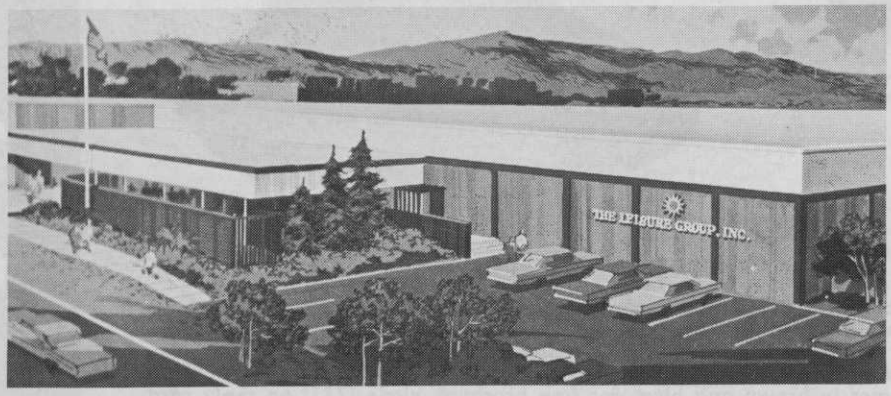
"This survival rate may be adequate for city foresters, but homeowners who plant only a couple of trees want practically a 100% survival guarantee," Wright said. "To get this, we'll have to conduct experiments for a much longer time."

But Long and Wright are optimistic. Several of the trees they've brought in from different parts of the world look promising.

While many researchers have concentrated on selecting the occasional American elms that escape the disease, the MSU researchers have concentrated on foreign species. By the end of the summer of 1968, they had received over 600 seedlots of elms from Japan, India, Rumania, Russia, Austria and other European and Asian countries.

Now two years old, the trees were inoculated with spores of the Dutch elm disease fungus early this June. Twenty-five thousand were inoculated.

First results from the inoculations have been obtained. Nearly all trees belonging to one European species died. Another European species, the smooth-leaved elm, showed much higher resistance. A Japanese species also showed considerable resistance.



The new lawn and garden products plant of The Leisure Group, Inc., will be located by the end of the year at Watson Industrial Center in suburban Los Angeles. The new 117,500-sq. ft. facility will consolidate manufacturing and distributing operations of Hayes and Big Andy spray guns, Black Magic garden products, Thompson and Rain Spray sprinklers.

Anti-Desiccants Work On Stored Azaleas

Winter storage of container grown evergreen azaleas is often unsuccessful due to excessive leaf fall by late winter or early spring. Anti-desiccants should be given a trial for preventing this problem, believes Elton M. Smith, Extension horticulturist, Ohio State University.

Smith reported research results with anti-desiccants in a recent OSU Nursery Notes.

In an attempt to prevent leaf fall of Shams Flame Azalea, four anti-desiccants were applied to plants in a commercial nursery poly storage in Lake County. The anti-desiccants were Folicote at 1 (A.D.) to 4 (water) and 1 to 19; Foli-Gard, 1 to 4; Vapor Gard, 1 to 19; and Wilt-Pruf at 1 to 4. The first treatment was applied on Dec. 9, 1969, about 10 days prior to converging with the second layer. The second application was Feb. 10, 1970.

Leaves were counted on Apr. 3, 1970, on the terminal portion of stems six inches in length of three plants per treatment. Results are in Table I.

Most effective treatments with one application, Smith said, were Wilt-Pruf (1-4) and Folicote (1-4).

Table 1. Effect of anti-desiccants on leaf retention of Shams Flame Azalea stored under poly structures.

Treatment	Rate	Percentage increase in number of leaves on stems in April	
		One Application December	Two Applications Dec. & Feb.
Folicote	1-4	20	35
Folicote	1-19	10	35
Foli-Gard	1-4	5	20
Vapor Gard	1-19	5	35
Wilt-Pruf	1-4	15	20
Check	....	0	0

Tulsa Nurseries Organize

Twenty-eight nursery and allied landscape firms in and around Tulsa, Okla., have formed the Tulsa Association of Nurserymen. President Jim Sanseverino of Midwest Nursery Co., said the new association is to provide an information exchange among members and to keep up with current trends in the industry. Other officers are vice-president — Graydon Honeyman of Holland Nursery Co.; and secretary—Earl Foster of Green Thumb Garden Center.

LETTERS TO THE EDITOR

Gaining Popularity

We certainly enjoy your publication and feel that it is gaining popularity among the turf managers in our area. — WALLACE G. MENN, instructor, Texas A & M University, College Station.

* * *

Used Some of Your Ideas

I have read many of your articles and have implemented some of your suggestions here at the State Capital, St. Paul. I feel WEEDS TREES and TURF is invaluable in assisting me in budgeting, purchasing, and planning, which is my responsibility for the Capitol grounds and the Governor's mansion. — ROY ANDERSON, Landscape Architect, Forest Lake, Minn.

All Turf Entries Win For Venable Sprinkler Sales

Texas Turf Irrigation Association tagged a first-place award on the only two entries of Venable Sprinkler Sales, Inc., Irving, Tex., in the 1970 TTIA design and installation contest. Venable won in the heavy turf golf courses and parks division with its New Providence Development Corporation golf course in Nassau, Bahamas. The winning home lawn division entry was the W. Earl Harrison home in Waco, designed by Stanley Wright of Venable.

Judging was based on quality of design, appearance of the drafting work and adequate design criteria. The entry must have been designed, sold and installed by the entering firm, according to association rules.

This was the second year in a row for Venable Sprinkler Sales to win in the heavy turf contest. Last year the firm took top honors with its entry of the Burke Lake golf course at Annandale, Va.

"I'll call you Weed — I talk in my sleep."

It's Now CIBA-GEIGY, Ltd.

Shareholders have approved the merger of J. R. Geigy S.A. and CIBA Limited of Basle, Switzerland. The resulting corporation, CIBA-GEIGY, Ltd., counts 65,000 employees and annual volume of more than $1.5 billion. In the U.S., the merger combines CIBA Corporation of Summit, N. J., and Geigy Chemical Corporation, Ardsley, N. Y., into CIBA-GEIGY Corporation. Ardsley is corporate headquarters of the new firm, having 8,700 employees and research facilities and production plants in 10 states. The merger names Thomas Boucher as chairman of the board of the U.S. firm and Otto Sturzenegger as president and chief executive officer.

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RA-PID-GRO

For More Details Circle (116) on Reply Card

trimmings

MICHIGAN'S TREE INDUSTRY could be sweetened considerably if woodland owners recognized the potential for maple syrup. Michigan State University forestry researchers say latest figures show 400,000 tapholes when there could be 22 million.

* * *

TORONTO City Council's parks committee has recommended the city increase its budget of $40,000 to $100,000 in 1971 to be spent on tree plantings to replace Dutch elm disease losses.

* * *

A TON OF OXYGEN is put in the atmosphere for each ton of wood produced, reports the Milwaukee Journal. A well-managed hardwood forest produces four tons of new wood, therefore four tons of oxygen, per acre, or enough to support 18 persons, the article said.

* * *

ANOTHER WAY of explaining how turfgrass is an oxygen producer comes from the Ohio Turfgrass Foundation. A 50x50-ft. plot produces enough oxygen to supply four persons.

* * *

IS OUR TOTAL SUPPLY of oxygen diminishing? No, says a recent government report. The Environmental Science Services Administration reports that the oxygen content of the atmosphere at sea level is 20.946 percent, almost exactly the same as in 1910.

* * *

WHAT'S THE DIFFERENCE between a pesticide label "suspension" and "cancellation." Suspension means that interstate shipment of the pesticide must cease. Notice is given of a proposed cancellation. Then sellers or manufacturers have 30 days in which to object. The matter could be referred to a committee for review and evaluation. In the meantime, sale of the pesticide may continue.

* * *

A MASSIVE AERIAL RE-SEEDING project was carried out recently in California to stabilized forest areas destroyed by the state's most disastrous series of brush fires. Helicopters were used to seed grass on 100,000 acres in a battle against time. The seeding was expected to be complete by mid-November, before possible heavy winter rains. Another 200,000 acres in less confined areas are being re-seeded by airplanes.

About 175 persons attended the 11th Lawn and Turf Conference in November at the University of Missouri—Columbia. After the formal program, conferees adjourned to UMC turfgrass research plots. John Dunn, far right, assistant professor of horticulture, and group inspect bluegrass plots devoted to management studies.

A $2,000 check is being passed from newly elected president of the Missouri Valley Turfgrass Association, Gary Black, to Richard Aldrich, director of UMC's Agricultural Experiment Station. With them is John Dunn. The MVTA check is for turfgrass research. In another presentation, Robert Mitchell, left, secretary-treasurer, Golf Course Superintendents Association of America, hands Carl Wipke, UMC horticulture student a $400 scholarship certificate. Dunn and the recipient's father, Sid Wipke, right, were close at hand for congratulations. The Wipkes converted their family farm into a recreation center that includes a golf course.

Frost and Higgins Wins Landscape Merit Awards

Frost and Higgins, landscape contractors, Burlington, Mass., recently received two merit awards from the American Society of Landscape Architects. The honors resulted from the landscaping of Polaroid, Winter Street, Waltham and McDermott Court, Massachusetts Institute of Technology. Frost and Higgins also has won nine commercial landscape awards from the American Association of Nurserymen. Sasaki, Dawson, DeMay Associates of Watertown, Mass., were the landscape architects.

JANUARY IS THE ANNUAL TURF ISSUE

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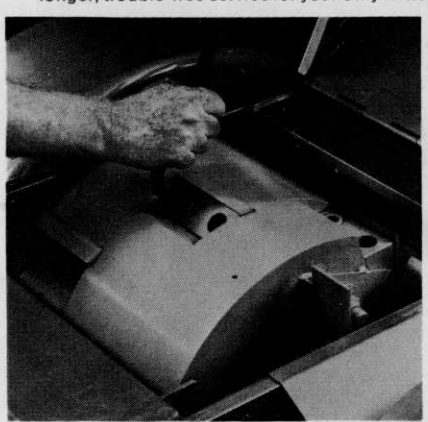

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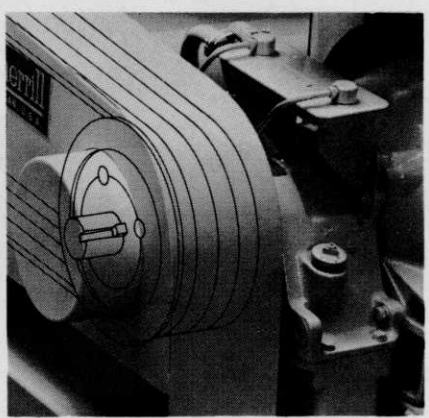

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